

Z
733
W18S6

UC-NRLF



B 4 685 411

YD063910

EXCHANGE



1863
1864

SPECIFICATIONS for the Construction
of the Superstructure for the Northwest
Wing of the State Historical Library
Building at Madison, Wisconsin

By Arthur Peabody, Architect

MADISON
Wisconsin Historical Society
1912

2133

1185-

WJW

Contents

1185-
1185-
1185-

Beginning at page

GENERAL CONDITIONS	3
GENERAL STATEMENT	10
MASON WORK	12
CONCRETE WORK	23
CARPENTER WORK	27
ROOFING AND METAL WORK	37
PLASTER WORK	39
PAINTING AND GLASS	41
PLUMBING AND DRAINAGE	46
HEATING AND VENTILATION	53
ELECTRIC WORK (separate bid requested)	61

EXCHANGE

Specifications

for the Construction of the Superstructure for the Northwest Wing of the State Historical Library Building at Madison, Wisconsin. Prepared by Arthur Peabody, Architect.

[Authorized by Chap. 574, Laws of Wisconsin, 1911.]

GENERAL CONDITIONS

I. **Bids.** Sealed proposals will be received for the construction of the superstructure for the said Northwest Wing, up to 12 o'clock noon, Tuesday, April 9, 1912.

II. **Form of bids.** Bids must be on the printed forms furnished by the Secretary of the Special Building Committee of the State Historical Society of Wisconsin, and in conformity with the directions found therein. All bids must be sealed and addressed to the Secretary of the said Committee, accompanied by a certified check to the amount of two per cent of the bid, drawn to the order of the said Secretary, which the bidder must agree to forfeit if he fails to enter into contract for the work bid upon within five days after written notice of acceptance of his bid. The checks of all bidders will be returned as soon as the contracts are let, except that the check of the successful bidder will be returned upon approval of the contract by the Governor of Wisconsin.

III. **Bond.** The Contractor must furnish a good and sufficient bond to the amount of twenty-five per cent of the contract amount, with sureties satisfactory to the Governor of Wisconsin and to the Special Building Committee of the State Historical Society, conditioned upon the faithful performance of his contract, and the payment of all claims for labor performed

or materials furnished in and about the completion of his contract, in accordance with Chapter 292, Laws of Wisconsin, 1899.

IV. Deposit for plans. Contractors taking plans and specifications from the office of the Secretary or of the Architect will be required to deposit as surety for their return at a set date, ten dollars (\$10). In event of the Contractor not returning the plans or specifications on the day set for such return, the Secretary will deduct the sum of two dollars (\$2) from the deposit for each and every day the plans and specifications are so withheld.

All plans and specifications must be returned to the Secretary of the Committee before certified checks will be returned to bidders.

V. Damage and injuries. The Contractor will be held responsible for all damages to persons or property occurring in any manner by reason of his prosecution of the work, and the State Historical Society of Wisconsin is empowered to withhold all moneys due or to become due to the Contractor and to proceed at law against the Contractor and his sureties on his bond, to fully protect itself against any claim or claims whatsoever arising from such causes as above stated.

VI. The owner. The work is being performed for the State Historical Society of Wisconsin, a corporate body under the Laws of Wisconsin, and acting as Trustee of the State. For convenience, said Society is in the specifications spoken of as the Owner.

VII. Office of the drawings. The drawings, details, and such writings, interlineations, and figures as may be made upon them are to be considered a part of and as illustrating the specifications. All work or material shown on the plans and omitted from the specifications, or vice versa, shall be done under the contract price, the same as if shown or mentioned in both.

The Contractor shall check the drawings and specifications before laying out the said building or work, and report to the Architect any discrepancies discovered. Any unforeseen difficulties or discrepancies arising during the progress of the work must be promptly reported to the Architect, and his approval of any necessary changes obtained before the work on them proceeds.

VIII. Duties of contractor. The Contractor will be held strictly to execute such work and to use such materials as here-

inafter described. He will further be held to submit as to character of the materials used and the work done, to the judgment of the Architect, and to secure from him all necessary certificates regarding payments on the contract; also written orders for all additions or deductions which may result from changes of design or plans.

IX. Foreman. The Contractor must have some competent person on the work to receive instructions and see when each particular part of the work is required. Sub-contractors will not be recognized.

X. Work and materials. Upon being directed to do so by the Architect, the Contractor is bound in all cases to remove improper work or materials and to do so within forty-eight hours after receiving written notice from the Architect; but if the contractor, after having been directed as above to remove the same, shall refuse or neglect to do so, he shall not only suffer a deduction from the contract price of the difference in value of proper or improper work and materials, but shall also be liable for all damages of whatever nature or kind that may result from such causes.

The above provisions so apply in the same way to all materials or work used, made or fixed without the knowledge of the Architect and not approved by him. The Owner, under the advice of the Architect, shall be at liberty, if in his judgment the case requires it, to replace the same and make good every part at the cost and charge of the Contractor.

XI. Testing. All materials brought upon the job will be subject to sampling, inspection, analysis, and testing at any time and all times by the Architect, and the Contractor must not use any materials, tests of which are being made, until the approval of the Architect is obtained. Any material condemned by the Architect must at once be removed from the premises.

XII. Damages and delays. This contract is to be completed, and must be finished throughout, as hereinafter described, within twelve (12) months after the execution of this contract. Any delay in the entire completion of the work contracted for shall make the Contractor liable to the Owner in the sum of one hundred dollars (\$100.00) per day as liquidated damages for each and every day of such delay of completion after the end of said twelve months.

Bidders are advised that these damages are not fixed as a mere

penalty, but are so fixed because the contract must be completed by the time set or such injury will be caused to the Owner as will doubtless exceed the sum named.

XIII. Beginning work. While the time of completion is specified to be twelve months after execution of contract, no delay in beginning construction shall be made by the Contractor. The work shall be begun within thirty days after said execution, or as soon thereafter as the season permits, and construction shall go on rapidly and continuously to completion.

XIV. Delay of the work. In case of delay by the Contractor in providing and delivering the requisite materials, or in advancement of the building or work, or on account of a deficiency of workmen, or for his misconduct, inattention or inability, the Owner shall be at liberty (after the Architect has given or left for the Contractor with his foreman or clerk, two days' notice in writing) to provide at the expense of the Contractor all such materials, and employ such number of workmen at such wages as the Architect shall think proper, and the cost and charges incurred shall be retained out of the contract amount and paid by a reservation from the estimates from time to time, or amounts thereof which may be due or recoverable as liquidated damages.

XV. Contractor's responsibilities. The Contractor will be required in all cases to use proper care and diligence in bracing and securing all parts of the work against wind, storm, and frost, and against any possible danger of failure, collapse, or damage during the progress of the work, and he will be held strictly liable for all damages which may accrue to any persons or property whatsoever by failure to do so. He must use proper judgment in all cases as to the amount of diligence and care required for the same and for the proper execution of the various constructions, and no excuse of ordinary care or quality of work will be allowed when the nature of the work required extra care.

It is to be understood by the Contractor that the building or work is entirely at his risk until the same is accepted, and he will be held liable for its safety to the amount of money paid him by the Owner on account of same, risk of fire excepted, as provided in the contract.

XVI. Changes in work. The Owner reserves the right, by conferring with the Architect, to alter or modify the plans and these specifications in any particular, and the Architect shall

be at liberty to make any deviation in the construction, detail, or execution without in either case invalidating or rendering void the contract. And in case any such alteration shall increase or diminish the cost of doing the work, the amount to be allowed to the Contractor or Owner shall be such as may be equitable and just, as provided in Article XII of the contract.

XVII. Extra work. Should any extra work be required or changes in the plans be made whereby the cost may be increased or diminished, all such changes must be determined and agreed upon before the change is made, and the amount, whether increase or diminish in cost, must be endorsed upon the back of the contract.

XVIII. Superintendence. The Owner will designate the person who shall be Superintendent therefor. The duties of such Superintendent shall be faithfully to enforce all the conditions of the contract and to furnish all necessary drawings and information that are required properly to illustrate the designs given; also to make estimates for the Contractor of the amount due him on the contract, in no case estimating any material or labor which is objectionable or has not become a permanent part of the work, and when the building is completed, to issue a final certificate to the Contractor, which certificate, if unconditional, shall be an acceptance of the work.

It is not incumbent upon the Superintendent to notify the Contractor to attend to and have in readiness his own work and the requisite materials at such time as the progress of the building or work may require them.

If the Contractor does not attend to this part of his work and have his own portion of the labor and materials in readiness as they may be wanted to incorporate into the building, he will be held accountable for all delays and damages in consequence of any such neglect to all and any persons whatsoever damaged by his neglect, and the Superintendent is empowered to withhold such sums from the contract price as may meet the cost of such damages.

XIX. Certificates. Any payment made on work during its progress, on account of the contract or for extra work, shall in no case be construed as an acceptance of the work executed, but the Contractor shall be held liable to all the conditions of the contract until the work is finished and completed and accepted.

XX. Completion and acceptance. All the specifications, designs, plans, details, elevations, and sections of each and every kind that the Contractor may have received, must be preserved and returned to the Architect before the final certificate is given; and the Owner must be notified by the Contractor that he is ready to have a settlement, so that if the Owner, or parties in interest, have any bills to file in, they can do so before the Superintendent makes his final certificate or adjustment between the parties.

The Architect's opinion, certificates, report, and decision on all matters concerning this contract, shall be binding and conclusive, except as arbitration is provided for in the contract.

XXI. Interpretation of drawings. Should the Contractor or his representative obtain any explanation or interpretation from any of the employes in the Architect's office, or from any of the employes of the Owner, which does not strictly conform to the plans, drawings, and these specifications, either for guiding in estimating or for furnishing materials and executing the work after the contract is closed, such interpretation will be of no avail with the Architect, no matter how definitely the explanation may have been given, unless the Architect's written order is given for the same. It is intended that the plans, drawings, and these specifications shall be the guide in executing the work and settling the contract, except as modified by such written orders as may be given and agreed upon between the Owner, the Architect, and the Contractor.

XXII. Substitution of materials. Wherever in the plans and specifications a specific manufacture is indicated, it is to be understood that articles of equally good material and manufacture, if approved in advance in writing by the Architect, may be substituted, approval to be filed with the contract in the office of the Owner (Room 205, State Historical Library Building).

XXIII. Co-operation with others. Each contractor is to co-operate with other contractors on the building or work, so that as a whole the job shall be a complete and finished one of its kind; and he shall carry on and arrange his work in such a manner that none of the co-operating contractors shall be unnecessarily hindered or delayed in the progress of the work; and when this Contractor has finished his work he shall remove from the premises all tools, machinery, debris, etc., and

(so far as he is concerned) leave the building or work and adjacent premises free and clear from all obstructions and hindrances.

All rubbish must be regularly removed and not allowed to accumulate on the premises.

XXIV. Extract from the Laws of the State of Wisconsin, 1911:

No. 39, A., Section 1729m. 1. No laborer, workman or mechanic in the employ of the contractor, subcontractor, agent or other person, doing or contracting to do all or a part of the work contemplated by the contract, shall be permitted to work more than eight hours in any one calendar day, except in cases of extraordinary emergencies.

2. The phrase "extraordinary emergencies" as used in this section, shall mean and include such as grow out of the necessity of protecting property or human life when endangered from fire, flood or storm.

3. This section shall apply only to such work as is actually performed on the premises on which such buildings or works are being erected, constructed, remodeled or repaired.

Section 1729n. 1. Any contractor, subcontractor, corporation, copartnership, firm or person, or any agent thereof, who violates any of the provisions of this act, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine not exceeding two hundred dollars, or by imprisonment for not more than six months, or by both fine and imprisonment.

3. Any contractor, subcontractor, corporation, copartnership, firm or person, or any agent thereof, who after executing a contract under the provisions of this act shall allow or permit any laborer, workman or mechanic in his, its or their employ or in the employment of any contractor, subcontractor, agent or other person under his, its or their control or direction, to work more than eight hours in any one calendar day, except in cases of extraordinary emergencies, shall be deemed to have violated the provisions of this act and shall be subject to the punishment herein provided for.

4. Whenever it shall be ascertained that any laborer, workman, mechanic or other person worked more than eight hours in any calendar day in violation of subsections 1 and 2 of section 1729m, the proof of such fact shall be prima facie proof that such laborer, workman, mechanic or other person was so required or permitted to work.

Section 2. This act shall take effect and be in force from and after its passage and publication.

XXV. The Owner reserves the right to accept or reject any and all proposals.

GENERAL STATEMENT

Proposals. Proposals shall be for the entire construction of the superstructure of the Northwest wing of the State Historical Library Building, according to the plans and specifications. *Except that separate proposals are requested for the electrical work, as noted in the next section below.*

Description of the building. This building is located west of the present main State Historical Library Building (herein designated as "old building") and north of the corresponding wing. In a general way the new wing shall be similar to the old except as modified by these plans and specifications. The building shall be constructed with masonry walls faced with Bedford Limestone. The floors and roof shall be of porous terra cotta arches, supported by a system of steel beams and columns and covered with concrete flooring. Mezzanine floors are not included in this contract, but are a portion of the book stacks—supported from the main floors by the book stack construction. The book stack construction itself and the electric lighting of the entire building will not be included in this contract; neither will the elevators and the stairs be included.

Separate bids are requested at this time for the electric lighting of the entire building. See pages 61 to 70 inclusive for detail of this work.

General note. The excavation and concrete foundations for the walls and piers are now completed up to one foot below finished grade line. The excavation for the tunnel connecting the two wings and construction of the same remain to be done and are included in this contract, together with cutting the necessary openings from the tunnel through the walls of both new and old basements. Examine the drawings and specifications for any further items of like nature shown or mentioned as necessary to complete the work.

Connection to old building. The Contractor shall make the necessary connection to the present building so that all walls will be thoroughly anchored together. The stone work shall be carefully jointed at the connections and made to line perfectly in jointings. Cut the necessary holes for insertion of steel beams etc. and make the openings for doors into the old parts as shown. The Contractor shall carefully level the floors from the old to the new portion, taking up all discrepancies in the finished floor construction.

He shall make a proper connection at the roof so that the roof covering will go on in a perfect and water tight manner and good drainage will be secured; take down and rebuild all old fire walls etc. as necessary. He shall form a perfect and water tight joining of the roofing and gutters and other parts so that the union between the new and old parts shall be complete and satisfactory.

Fence. The Contractor shall build a fence eight feet high along Langdon and Park streets inside the curb wall, and from Park street to the main building, with 6" cedar posts 12 ft. long (or 6" x 6" hemlock posts) and with 2" x 6" dressed strings at top and bottom covered with 1" x 4" No. 1 hemlock flooring matched and dressed and well nailed. The fence shall have a strong capping on top. Provide gates for entrance on Langdon street. The fence shall be painted two coats of lead and oil on exterior surfaces. When the building is completed the fence shall be removed.

Disposal of materials. The Contractor shall avoid obstructing the streets and walks about the building. So far as possible materials shall be unloaded within the enclosure of the fence. Under the direction of the Architect materials may be unloaded outside and left for short intervals under the requirements of Section 4 of the Mason's Specifications.

Office. Build an office on the premises for the use of the Architect, Superintendent, Contractors, and others. The building to be about 12 ft. x 16 ft. in size, solidly and tightly constructed and heated, with convenient equipment for carrying on the business of constructing the building.

MASON WORK

Note. Read the General Conditions at the beginning of these specifications, on pp. 3-9 inclusive. Every requirement there contained applies to this contract the same as if here repeated. Note the General Statement about proposals, on pp. 10 and 11, and estimate in accordance therewith.

1. **Grade.** The building grade will be furnished to the Contractor.

Note. Attention is called to the General Note on page 11, touching additional foundations.

2. **Excavation.** Excavate for the tunnel and other constructions as shown on the drawings. Level all trenches and foundations at the right height, leaving the excavated earth outside the building. Excavate for dwarf walls and other constructions and leave all excavated portions level and smooth, ready for the cement floor.

3. **Grading.** Exterior grading will be done by the Owner.

4. **Bailing and protection.** The mason shall keep the excavation free from water at all times, and shall protect the work from frost and the adjoining portions of the grounds from damage. He shall protect all trees by boxing around, etc. as directed by the Architect. Passage to and from the grounds shall be made where directed by the Architect.

5. **Foundations.** The bottom course of all foundations for the tunnel shall be Portland cement concrete. All concrete work shall be done by the contractor for concrete.

MASON MATERIALS

Note. Examine the drawings and specifications carefully for amounts and kinds of materials.

6. **Cut stone.** All cut stone shall be first quality, free from sand holes, cracks, seams, and other defects in strength or appearance.

Where **Bedford stone** is specified it shall be the best quality of Buff Bedford stone quarried at Bedford, Lawrence Co., Indiana, of fine grain and close texture, approved and accepted by the Architect.

7. **Common brick.** Common brick shall be hard burned brick equal to Chicago hard burned merchantable brick of first quality.

8. **Face brick.** The interior of the tunnel shall be faced with first quality selected Portage white sand lime brick laid in white Medusa cement mortar.

9. **Mortar color.** Mortar color where specified shall be of first quality.

10. **Lime.** Lime shall be fresh unslaked lime of a brand and quality satisfactory to the Architect.

11. **Brick layer's cement** shall be Carney's Mankato brick-layer's cement or other brand accepted by the Architect.

12. **Structural steel** shall be mild steel strained not to exceed 15,000 lbs. per square inch and shall comply with the manufacturers' standard specifications for steel in the Cambria Steel Co. Handbook, pages 353 to 356 inclusive.

13. **Cast iron** shall be new metal skilfully and accurately cast and shall comply with the manufacturers' standard specifications for cast iron in the Cambria Steel Co. Handbook, page 357.

14. **Tile partitions and furring tile** shall be first quality soft porous tile, straight and sound and suited to receive plaster.

15. **Sand** for mortar shall be clean coarse bank sand free from loam, clay, or other foreign matter and of a quality approved by the Superintendent.

16. **Water.** The Contractor shall furnish water for building purposes.

17. **Portland cement.** The Contractor shall furnish Portland cement of first quality for all work. Cement shall be fresh Universal cement, Atlas, or Lehigh (Eastern mill) and shall comply with the usual tests for first quality cement as to tensile strength, setting, etc.

CUT STONE WORK

18. **General.** All stone shall be of uniform color, free from defects that may impair its strength or appearance; all angles must be square, so that the joints will be of an even thickness

at all points. All stone must be delivered at the building properly fitted; all fitting that may be necessary at the building must be done by this Contractor; cut the holes for all lewises into parts of the stone that will be covered up by other stones after they are set in place. If cut stone is shipped over 100 miles, it must be crated.

Wall facing. All exterior walls of the building shall be faced from twelve inches below grade to top of building with cut stone. The stone facing shall consist of Buff Bedford Limestone from Bedford, Lawrence Co., Indiana. The stone must, in color, texture and quality, be identical with that used in the part of the building now erected, and with the sample on file in the office of the secretary of the Special Building Committee at Madison, Wisconsin.

The cut stone includes all cornices, window-sills, walls, and ornaments on the face of these walls, the walls of runways to basement, and their balustrades. The facing must be laid in courses alternating six and ten inches deep; about one-quarter of the stones in the ten-inch courses must be eighteen inches deep. The stones of pilasters and pedestals must extend as far into the walls as the corresponding courses of the stone wall, facing. The angle-stones for main cornice must be large enough to keep the center of gravity inside the wall line. All stones constituting door-and-window-jambs and all external angles, must be rectangular solids—not cut away or clipped on the unseen angles.

Joints. The joints must be distributed in conformity with the large scale elevations and sections. The arrangement of joints there indicated shall govern the jointing of facing in general; no false joints will be allowed. There shall be no vertical joints in the jambs of openings.

Finish. All flat surfaces must be finished with a tooth-chisel by hand; the grooves shall be of the same number per inch as in the work already done; all mouldings must be finished smooth. Cut the profile for all carved mouldings, but for all other carving leave stone projection at least two inches larger in all directions than the size of finished ornaments. Cut throats to form drips, immediately under the front edge of all projecting flat surfaces.

Lintels. The lintels over all windows shall be one piece, the full depth of jamb.

Pedestals. The body or die of pilaster pedestals shall be one piece of stone.

Window-sills. All window-sills shall be dressed smooth on top and have a slope of one-and-one-half-inch per foot; but the beds must be horizontal.

The basement window-sills shall be no less than ten by twenty-two inches; first-story window-sills no less than eighteen by twenty-two inches. The window-sills for stories above will vary in size, as shown on scale drawings.

Door sills. There are no sills set in that part of the building already built, and all necessary sills for this part will come under this contract. All door-sills shall be of gray granite, dressed with a ten-cut patent hammer.

19. **Stone carving.** All ornaments shown by the drawings of the outside of the building shall be carved by this Contractor. Mouldings not of the ordinary kind, shall be carved. All carving shall be done after the stone is set in place at the building.

For carved mouldings, the rough mouldings will be cut by the cut-stone contractor; but for other work he will leave large blocks, that shall be cut down by the stone carver. All carving shall be done by skilled craftsmen; and if any carvers are employed who have not the proper ability to produce the quality of work desired on this building, they shall be dismissed upon demand of the Architect.

Joints coming through carved mouldings and ornaments must be filled with a composition of stonedust and shellac, before carving is commenced. This Contractor must furnish the scaffolding required to do the work under his contract.

20. **Setting.** The mason shall provide all derricks, hoists, and other apparatus, and set the stone in best lime mortar in the best manner, leaving the work plumb, straight, and true. Do all necessary trimming and adjusting of cut stone to make a perfect and acceptable piece of work. Provide mortar composed of fresh lime and clean washed bank sand for the work, and when the building is finished point up the joints with cement in a neat and workmanlike manner.

21. **Scaffolds, etc.** Furnish all scaffolding, ladders, hoists and other apparatus, and grant the use of it to other workmen during the progress of the work or putting up work in connection with masonry.

22. **Protection of stone.** Protect all stone during the whole

course of building operations by means of board coverings and otherwise as necessary.

23. **Common brick.** All walls above the foundations shall be laid of hard burned brick. This brick shall back up all stone work of the exterior facing and shall be well bonded into it. Portions of the tunnel shall be of hard burned brick as noted on the drawings, and other portions will be of white sandlime brick.

24. **Mortar.** All brick shall be laid in brick layers' cement mortar. Furnish lime mortar for setting stone.

25. **Brick work.** Bricks shall be wet in dry weather and laid in solid joints. Heading courses in common brick work shall be laid every sixth course. Courses shall be kept plumb and level from end to end of the building. The walls shall be levelled exactly for joists and girders, with a heading course for bearings. Leave all necessary openings, build chases and slots, flues for vent and air; flush up close to all window and door jambs, sills, etc. Build discharge arches over all openings. Build in anchors, wood blocks, lintels, and other things of like nature for the proper completion of the work. The inner 4 inches of all walls shall be laid up of hollow brick formed with two air spaces in each.

26. **Tunnel.** Construct the tunnel connecting the new wing to the old with 12 inch brick walls with 2 inch air space laid in cement and plastered one-half inch thick on the outside with Portland cement mortar. The top of the tunnel shall be constructed with a concrete slab reinforced as shown. Build a man hole midway between buildings to the surface of the ground ready for the sidewalk light over as detailed. At each end of the tunnel connect with the present areas, rebuilding the area at the old building as shown. Prepare the areas for the same vault lighting of iron, concrete and prismatic lights. Cut the walls and footings of each wing beneath the present windows down to the floor line of each basement and carry the concrete floor through into the buildings. The inner four inches of the tunnel walls shall be formed of selected Portage sandlime brick laid in white Medusa Portland cement as specified. All interior work of the tunnel shall have neatly struck joints.

27. **Openings.** Leave openings for pipes and other apparatus of the building constructions, and when the pipes, etc. are in place wall closely up to them.

28. **Slots.** Form slots and chases in the brick work for soil pipes and vents, etc. as shown, extending from foundation to roof.

29. **Frames.** Build up the masonry about the rough door and window frames when they are plumb and straight. The carpenter will set the frames, but the mason shall see that they are right before building up the masonry. He shall be responsible for their being plumb when the masonry is finished.

30. **Cutting and patching.** The mason shall do all cutting, patching and mending of masonry for any purpose in connection with the construction of the building.

31. **Tile partitions and furring.** All interior partitions in the building shall be formed of 3" porous hollow fireproof tile, set in brick layers' cement. Partitions above 15 feet in height shall be of 6" tile. Structural steel columns shall be fireproofed in the basement with two layers of 2" fireproofed tile. All outside walls in the basement shall be furred with 2" hollow porous fireproof tile, and all ventilation flues shall be furred about with 2" and 3" tile except where shown to be furred with wire lath. Do all other tile furring necessary to form a perfect and sightly piece of work.

Note. The partition to be constructed in room No. 118 shall be of tile like other partitions. This Contractor shall do all necessary cutting and repairing of mason and tile work as well as construct this partition.

32. **Tile floor arches.** The Contractor shall provide and fix in place floor-arches in the first, second, third, and fourth-story floors, roof, and stair-landings; also fix fire-protective coverings around the bottom flanges of all floor-beams and girders. All floor-arches and girder-covering must be of porous terra cotta. The floor-arches must be of end construction. All arches shall be eight inches high.

The floor-arches shall, after setting, be subjected to a test with a load of 800 pounds per square foot, and must stand the same to the satisfaction of the Architect and Special Building Committee.

33. **Shoring.** The mason shall do all shoring, supporting and bracing of the work should such be necessary.

34. **Pointing and cleaning.** When the work is complete the mason shall point up and clean down the entire building. Underpin all stone work when the building is finished.

IRON AND STEEL WORK

1. **Materials.** Furnish and set all steel structural girders and posts and other steel and iron work noted in the drawings in connection with interior and exterior. Furnish shop drawings for all work. All connections shall be Cambria standard hot riveted connections. All work milled for correct bearing. This Contractor shall also furnish a complete set of detail working drawings, or blue-prints of the same, to the Architect. All the structural steel members entering into the construction of this building shall be "mild steel" of a uniform grade.

2. **Inspection and tests.** All material intended for use in this structure, and all work, will be subject to such inspections and tests at the mill or shop, and during erection, as the Architect and Special Building Committee shall deem proper; and the Contractor shall at any time furnish samples of materials and other means for making the tests.

The mill and shop inspections are not to be considered final, but all material and work shall be subject to constant inspection until the final acceptance of the building.

Any unfaithful or improper work that may be discovered before its final acceptance, shall be corrected immediately; and any unsatisfactory materials used in the work will be rejected and removed on the requirements of the Architect and the Special Building Committee, notwithstanding that the same may have been overlooked by the inspector and estimated. The inspection of any work shall not relieve the Contractor of his obligation to perform sound work, as herein specified; and all work which, during its progress and before its final acceptance, may become damaged from any cause, shall be removed and replaced by good and satisfactory work.

3. **Erection.** This Contractor shall provide all scaffolding and hoisting-apparatus necessary for the erection of the structural steel and iron herein specified, or shown on drawings; and will be held responsible for the safety of scaffolding, hoisting-apparatus, derricks, etc., used by him at the building.

Beam connections. Cambria Standard Beam Connection Angles shall be used for all beam-framing, unless a special connec-

tion is required. Connections shall be proportioned to sustain the maximum loads that the members will bear.

Tie-rods. All tie-rods between beams shall be five-eighths of an inch in diameter.

Separators. Where two or more beams are shown to be set together, they must be provided with bolts and cast-iron separators spaced not more than five feet on centers. One separator shall be set at each bearing and the others spaced at uniform centers as far as practicable. The separators shall be not less than three-quarters of an inch thick, and cast to fit exactly to the profiles of the beams.

Where distances, center to center, of beams and girders are not given, they must be placed at the minimum distance given in Cambria's table of separators.

Punching and reaming. In all the work the diameter of the punch shall not exceed by more than one-sixteenth of an inch the diameter of the rivets to be used. Rivet-holes must be accurately spaced; the use of drift-pins will not be allowed, except for bringing together the several parts forming a member, and they must not be driven with such force as to disturb the metal about the holes. If the holes must be enlarged to admit the rivet, they must be reamed.

All field-connections must be hot riveted, using a pneumatic riveter.

The rivet-holes for splice-plates of abutting members shall be so accurately spaced, that, when members are brought into position, the holes shall be truly opposite before rivets are driven.

Rivetting. Rivets shall be of the best quality rivet-iron, and shall bend cold 180 degrees to a curve whose diameter is equal to the thickness of the rod, without sign of fracture on convex side.

The pitch of rivets in all classes of work shall never exceed six inches, nor sixteen times the thinnest outside plate, nor be less than three diameters of the rivet. The rivets used shall generally be five-eighths, three-quarters, and seven-eighths of an inch in diameter. The distance between the edge of any piece and the center of a rivet-hole must never be less than one-and-one-quarter of an inch, excepting for bars less than two-and-one-half inches wide; when practicable, it shall be at least equal to two diameters of the rivet.

Rivets must completely fill the holes, have full heads concentric with the rivet, and be of a height not less than six-tenths the diameter of the rivet; and must be in full contact with the surface or be countersunk when so required, and machine-driven wherever practicable.

The strain allowed for bearing on rivets must not exceed 15,000 pounds per square inch, and for single shear the strain must not exceed 7,500 pounds per square inch.

Assembling. All built parts must be completely assembled at the shop, and inspected by the Architect, the Special Building Committee, or their representatives before being shipped to the building.

The several parts composing built members shall be made perfectly straight and true before assembling.

Built members must, when finished, be true and free from twists, kinks, buckles, or open joints between the component pieces.

Columns. All the columns in this building shall be Cambria Standard Plate and channel columns built of steel and must be proportioned according to sizes given on Sheet 2.

All abutting faces of columns must be planed or turned off to an even bearing, square with the axis of the column, so that they will come in contact throughout.

The connections of girders and joints to columns must be of the proper proportions, and special pains must be taken to provide for eccentric loading in the proper manner.

Lintels. All headers over openings carrying beams shall have at least an eight-inch bearing at each end. On north and south sides of the building the floor beams shall be framed into continuous beams built into the walls as shown.

Anchors and bearing-plates. All beams and channels must have bearings on walls of not less than eight inches; they shall be provided with pin-anchors, and steel bearing-plates. The bearing-plates for beams under nine inches high shall be three-quarters of an inch thick; those for ten-inch and twelve-inch beams shall be one inch thick; and those for larger beams shall be one-and-one-quarter inch thick. All plates shall be of such area as to impose 100 lbs. per square inch on brick work according to the calculated maximum load which members can support.

Skylight curbs. Build a metal frame for the skylight curbs, as shown by the drawings on Sheet No. 2.

Area gratings. Basement window-areas must have movable wrought-iron grates over them. The frames for these grates must be made of three-eighths by two-inch iron; the bars must be made of one-quarter by two-inch iron, one-and-one-half inches on centers; run a three-quarters-of-an-inch round stiffener through the bars, with washers around it fitting closely between the bars.

Painting. All steel and iron-work, before leaving the shop, shall be thoroughly cleaned from loose scale and rust, and be given one good coating of pure boiled linseed-oil, well worked into all joints and open spaces.

After erection, the entire structure shall be thoroughly and evenly painted with two heavy coats of paint; the first coat shall consist of red lead, mixed with pure boiled linseed-oil; the second coat shall consist of white lead and pure boiled linseed-oil.

In riveted work, the surfaces coming in contact shall each be oiled and painted one coat, before being riveted together.

Pieces which are not accessible for painting after erection shall have two coats of paint before erection.

All screw-threads, reamed holes or other finished or planed surfaces, shall be coated with white lead and tallow before being shipped from the shop, but no painting or oiling must be done until after inspection.

Discrepancies and omissions. Any discrepancy in figures as given by the drawings, or omissions in definitely locating any piece or pieces in this structure, must be settled by the Architect before this Contractor proceeds with the work.

All necessary measurements for location of the structural material must be verified by this Contractor, and he will be held responsible for the same.

4. Ornamental iron work and prism lights. Furnish and place gratings for areas, the iron thresholds for entrance doors, iron covers for steam pipe trenches, and all other iron work shown on the drawings. Construct and place the iron and concrete sidewalk lights over the openings at the middle and at each end of the tunnel, and the iron and concrete skylights over the museum in the fourth story. All to be like the Paschall Inter-

locking Vault Light Construction, filled with American three way prism lights set in Portland cement.

Finally. This contract contemplates and comprises a perfect and complete job of masonry, cut stone, floor-tile, structural steel, and iron work, and anything necessary to that result is hereby included the same as if particularly mentioned, described and detailed upon the plans and details. When completed the contractor shall remove all debris, tools, machines and apparatus of every sort belonging to this work, leaving the premises free from anything of the kind.

CONCRETE WORK

Note. Read the General Conditions at the beginning of these specifications, on pp. 3 to 9 inclusive. Every requirement there contained applies to this contract the same as if here repeated. Note the General Statement on pp. 10 and 11 about proposals and estimate in accordance therewith.

CONCRETE MATERIALS

Note. The Contractor shall furnish all Portland cement, sand, crushed stone, gravel and crushed granite and all reinforcing steel.

1. **Cement.** The Contractor shall furnish Portland cement of first quality for all work. Cement shall be fresh Universal cement, Atlas, or Lehigh (Eastern mill) and shall comply with the usual tests for first quality cement as to tensile strength, setting, etc.

2. **Cinders.** Furnish all cinders for floor and roof deadening. The cinders shall be clean screened cinders similar to those produced by the Central Heating Station of the University of Wisconsin.

3. **Sand.** The Contractor shall furnish all sand for concrete work. The sand shall be coarse, sharp bank sand free from quicksand, loam and organic matter. It shall be equal to Janesville Cement Shingle Company's concrete sand. It shall not contain stones larger than 1 inch diameter for reinforced concrete nor more than 25 per cent of stone $\frac{1}{4}$ inch in diameter and larger. Samples of the sand shall be submitted for approval and the sand delivered must equal the sample submitted.

For plain concrete, stone in the sand may not be larger than $1\frac{1}{2}$ inch in diameter, and in mixing the concrete if the proportion of stones in the sand exceeds 25 per cent as above, the excess shall be counted as stone not as sand.

4. **Crushed stone.** The Contractor shall furnish all crushed stone for concrete work. All crushed stone shall be limestone, 1 inch diameter, free from clay, dirt and organic matter, and thoroughly screened over a $\frac{1}{4}$ inch mesh and satisfactory to the Architect.

5. **Steel for concrete reinforcement.** All floor concrete in the basement and the several stories and the concrete roof shall have diagonal mesh steel wire fabric No. 7 made by the American Steel & Wire Co., in all parts, as indicated on diagrams.

6. **Other steel and iron.** Build into the concrete, also, all steel and iron that may be furnished by other contractors for any purpose.

EXTENT OF WORK

Note. Attention is called to the General Note on page 11, touching additional foundations.

7. **Plain concrete.** (Mixture—1 part cement, 3 parts sand, 5 parts stone). The tunnel foundations and all floors, and construction of other similar parts so shown or marked shall be of plain concrete. In general, this will be without reinforcement but some parts will be reinforced with steel rods as shown and detailed.

8. **Basement Concrete.** All floors resting on the ground shall be laid upon a layer of clean cinders. Such floors shall consist of a 4 inch layer of plain concrete, composed of one part cement to three parts of sand and five parts of broken stone. All such floors shall have a $\frac{1}{2}$ " thick surface composed of one part cement, one part sand and one part crushed granite.

9. **Tunnel covering.** Form the concrete covering for the tunnel crossing the court (see diagram). This covering shall be put on after the walls are in place. It shall be composed of concrete formed of one part cement, two parts sand, and four parts crushed stone and shall be reinforced as shown. The carpenter will furnish furring strips for the ceiling of the tunnel.

10. **Exterior concrete steps.** Exterior steps, ramps, platforms, etc., shall be built of plain concrete as shown. Also, all other steps shown or marked "concrete" on the plans. Exterior steps shall be corrugated by marking with a special tool.

11. **Cinder deadening.** Upon all tile floor arches in the building and upon the roof place a layer of screened cinders from

8 to 24 inches thick as shown. Upon this the finished concrete floors and the finished concrete of the roof surface shall be laid.

Concrete floors. All floors above the basement shall have a finished concrete floor 4 inches thick like the basement floor, except that the sand and granite finish will be omitted.

Concrete roof. The roof shall be formed of similar concrete, pitched to the water gutters as shown on the plans. The granite finish shall be omitted from concrete roof and the surfaces shall be floated and trowelled to a smooth surface.

Concrete walks, etc. The driveway to the basement on the north shall be formed of concrete like the basement floor, placed on a layer of clean cinders and corrugated as shown. The tunnel shall be paved with concrete like the basement floor.

Ironwork in connection. Form the concrete driveway to drain into the iron drain grating furnished by the plumber.

12. False work. A complete false construction formed of 2" plank dressed on the side next to the concrete shall be erected for this work. The false work must be accurately placed and rigidly supported and scaffolded to form.

MIXING, POURING, AND FINISH

13. Mixing. All concrete shall be mixed by a mechanical concrete mixer of a type satisfactory to the Architect. The concrete shall be mixed of a consistency to be readily brought to place in the moulds by a small amount of stirring and cutting with the spade. Excess of water must be avoided. Care must be taken to deposit the concrete promptly after being dumped from the mixer. The directions of the Architect as to the amount of water used in any part must be rigidly followed.

14. Conduct of work. Before any concrete is placed in any part of the structure all reinforcements for such portion must be completely in place and substantially held by wires or other device. The Contractor shall follow the directions of the Architect as regards pouring, stopping at night and other like matters. Great care shall be taken to avoid staining or smearing the brick and stone work on the exterior and interior. In cold weather care must be taken to remove all snow and ice from the forms before pouring.

15. Finish of concrete. The concrete basement floors, and all exterior concrete shall have 1½ inch finished surface consisting of one part cement to one part sand and one part crushed granite.

Floor concrete above the basement shall be floated smoothly off and prepared for a top dressing one inch thick, mixed and applied as follows:

The finished surface of the floors shall consist of one part Portland cement, one part sand and three-fourths part clean screened saw-dust. The mixture shall be applied smoothly, one inch thick, and trowelled to a flat even surface, carefully levelled. This concrete shall be laid in alternate strips of such width that they can be trowelled off without stepping upon, and the intervening strips shall be filled in after the first have become hard.

16. **Patching and brush coating of concrete.** All concrete work wherever exposed shall be carefully patched, cleaned and brush coated with cement to form a smooth surface. All honey-combed or rough surfaces shall be patched with concrete as soon as stripped.

Finally. This contract contemplates a perfect and complete job of concrete work, and anything necessary to that result is hereby included the same as if particularly mentioned, described and detailed upon the plans and details. When completed the Contractor shall remove all debris, tools, machines and apparatus of every sort belonging to this work, leaving the premises free and clear from everything of the kind.

CARPENTER WORK

Note. Read the General Conditions at the beginning of the specifications. Every requirement there contained applies to this contract the same as if here repeated. Note the General Statement about proposals, on pp. 10 and 11, and estimate in accordance therewith.

1. **Materials.** All materials used in the construction of this building shall be the best of the grade specified. All dimension stuff shall be long leaved yellow pine or Oregon fir, free from large or loose knots, sap, shakes, and other imperfections. Framings shall be constructed in a substantial manner. All dimension stuff shall be of the sizes specified.

2. **Joists.** All wood joists used in the buiding shall be yellow pine, extending 4 inches upon bearings and cross bridged with 2" x 4" strips, twice in spans over 12 feet, once in short spans.

3. **Cleaning and sanitation.** The carpenter shall remove from time to time all debris from the building and finally leave the building broom clean for the painter. He shall provide a privy for the workmen and maintain the same in sanitary condition during the whole building period.

4. **Lintels.** All masonry openings shall have wood lintels the full width of the wall, except such portions as are supported by stone lintels, brick arches in circular heads, or steel lintels.

5. **Closings.** When the condition of the building requires it, close in the window and door openings with canvas or other temporary closings to keep out the weather.

5a. **Furrings.** Fur the ceiling of the tunnel with 2" x 2" strips at 12 inch centres secured to 1" x 2" strips set in the concrete cover and anchored with 6 d. nails at 12 inch centres. Do all other wood furring shown on the drawings.

6. **Grounds.** Put up grounds for all casings, base, picture mouldings, chair rail, wainscot, and other inside finish. All to

be 7 $\frac{1}{2}$ " x 2", set plumb and true and made solid to each strip or stud.

7. **Strips.** Furnish and set for the plumber all wood strips for the support of pipes and fixtures. Form pipe channels where necessary with pine covers screwed to place.

8. **Cutting.** Do all cutting and fitting of woodwork, and wood framing for the plumber, gas fitter, heater, electrician, and other contractors on the work. Obtain permission from the Architect for cutting where the stability of the building is in question.

9. **Incidentals.** Furnish to the mason all wood blocks, bond timbers, wood centers, templates and other items necessary for carrying out this work.

10. **Scuttles and skylights.** Build plank curbs around the scuttles and plank covers, hinged and furnished with strong locks and quadrant fastenings. Place such scuttles on the building and frame out for skylights where shown.

11. **Ceiling lights.** The iron ceiling light sash will be constructed by others. Furnish the wood casings in connection.

12. **Roofs.** Roofs generally will be of concrete, covered with felt and gravel roofing. Glass roofs and tin roofs shall have the necessary wood construction shown on the drawings or specified. Furnish 2" x 4" grounds for building into all fire walls above composition roofs and all other wood strips necessary for fastening the felt about the edges of the roof.

13. **Framings in the roof.** Frame in the roof where shown for scuttles, skylight, vent flues, and other projections through the roof. The framing shall be done with dressed stuff.

14. **Elevator enclosures.** All woodwork in connection with the elevator enclosures above the roof shall be done by this Contractor.

15. **Museum walls.** The side walls in rooms 416 and 417 are to be covered with 1" x 4" No. 1 matched pine boards, well fastened to the wall on 2" x 4" furring strips placed at 3 feet centers. As preparation for applying burlap, by painter, securely nail a 1 $\frac{1}{2}$ " x 3" pine slat at top and bottom and corners, in same style as in other exhibition rooms of museum in old building.

16. **Cornices, etc.** The main cornice will be of stone. This Contractor shall do all necessary woodwork for the support and finish of the roof. See details for this work.

17. **Rough window frames.** Furnish and set rough frames of plank for all exterior and interior window frames, for building masonry against. These shall be removed when the building is ready for the finished frames.

18. **Storm sash.** The windows of rooms 230 and 232 shall have exterior storm sash of the same thickness as the regular sash. These shall be made in panels to fit the several sash openings. The storm sash shall be hung at the top on loose hinges, fitted for the work, and arranged to swing out at the bottom with metal adjusters. They shall have vent panels at the bottom. The Contractor for the glass shall glaze all storm sash. All sash shall have strong fasteners to hold them in place when closed. The small sash panels below the double-hung sash shall have similar storm sash, without hinges.

19. **Exterior windows.** All windows where shown with box frames shall have thick pulley stiles, back and inside linings, and sills as detailed. Frames to have sliding sash hung on giant metal sash chain running over anti-friction bronze faced pulleys and nicely balanced on lead weights. All woodwork of window frames to be of clear soft pine, (except pulley stiles, long leaved yellow pine); sash to be clear soft pine or clear cypress. Frames to have outside stiles of a form to permit hanging storm sash. The windows shown as casements shall be arranged to pivot on Howarth friction sash centers. Such windows shall have thick frames with mouldings as detailed and thick sash with extra wide bottom rails and other parts as shown. No window frames shall be set until the roof is on and the floor arches are in place. Leave the outside casings off until the frames are set. Caulk about the frames with oakum and make them air tight.

20. **Inside windows.** Windows or transoms shown on the interior of the building shall have $7\frac{1}{8}$ inch jambs, heads and sills, and $1\frac{3}{4}$ inch sash set in stops and arranged to pivot at the sides.

21. **Rough door frames.** All doors in the building shall have rough frames behind the regular frames. These frames shall be solidly anchored to the masonry and shall be left in place.

22. **Corridor.** Note the corridor in room 118 and furnish and set rough frames for doors and transom lights over doors, and other transom lights. The mason will do all construction of the partition forming a corridor in room 118. This Contractor shall furnish and place all doors, trim, hardware, and make all neces-

sary cutting and replacing of present work. All shall be equal to the labor and material specified for other parts of the building and shall correspond strictly with adjacent work. The door now entering room 118 from the main corridor of old building may be used over again in this work.

23. Outside doors and frames. The outside doors shall be clear quartered white oak $2\frac{1}{4}$ inches thick with $1\frac{3}{4}$ inch thick oak frames, mouldings and glass stops as shown in detail. All stiles and rails to be extra wide as shown. All transoms shall be $2\frac{1}{4}$ inches thick, the same material as the door. The Contractor shall guarantee the perfect condition of the doors for a period of two years. Door frames shall be screwed or bolted to the rough frames with fastenings concealed by oak plugs glued in place. The grain of plugs to run in the same direction as that of the frame.

24. Inside doors. All inside doors shall have $1\frac{1}{8}$ inch jambs and heads. Doors shall have extra wide stiles and rails, shall be $1\frac{3}{4}$ inches thick, moulded and paneled. Certain doors have carved members on the finish, (see details). The panels shall be five-ply, all to be as detailed. Sash doors to have glass stops. All doors to be veneered on pine cores with clear selected birch. For the number of sash doors, see specification for glass in doors, sections 14, 15 in painting and glass specifications (page —).

25. Finishing woods. All finish shall be clear birch for painting except that baseboards shall have oak shoes.

26. Extent of finish. This work is shown in detail and shall be furnished and placed in the very best manner by the Contractor. All woodwork shall be clear, kiln-dried stuff and shall not be delivered at the building until the plaster is dry. All shall be handsmoothed and sanded straight, and shall be free from knots, mill marks, sap, stain, or blemish (see details). All parts shall have wood baseboards, etc., as detailed. The windows shall have casings, stools, aprons and jamb linings as detailed. Other windows, wood stools, and aprons and wood casings applied to the frames inside of the plaster jambs and heads. All doors and cased openings shall have wood casings, and panelled jamb linings. Toilet and sink cabinets shall have wood walls and doors and other items shown on plans and details. All wood finish shall be painted on the back by the painter before being set in place. All carving shall be done by hand in the best manner.

27. **Picture moulding and cornice.** Throughout the fourth floor extend picture moulding of the same wood as the finish. Extend the wood cornice about the museum room as shown.

28. **Rough hardware.** The carpenter shall provide all nails, spikes, bolts, straps, and other rough hardware for the construction of the building; also, Howarth friction sash centers for pivotted casement windows.

29. **Finishing hardware.** The carpenter shall provide all locks, latches, knobs, escutcheons, door and window bolts, and butts and other finishing hardware which he shall put on the various parts of the building in a neat and workmanlike manner. Provide also screws and washers for fastening window stops. Each door shall have butts, lock, escutcheons, transom lifter, stop, and on double doors top and bottom bolts, etc. Doors with Blount spring hinges shall have foot bolts. Windows shall have each two lifts, one lock, and other devices for operating.

30. **Stairs.** The stairs will not be included in this contract.

FINISHING HARDWARE

Note. Read the General Conditions at the beginning of the specifications. Every requirement there contained applies to this contract the same as if here repeated. Note the General Statement about proposals on pp. 10 and 11, and estimate in accordance therewith.

Read the entire specifications as well as the General Conditions and thoroughly examine all plans and furnish all materials belonging to this branch, no matter whether mentioned in this specification or noted upon the drawings, diagrams or plans.

The Owner will not be liable for any extra material unless it shall be duly ordered in writing at an agreed price.

1. **Work not included.** Under finishing hardware, the furnishing of nails, bolts and screws except as incidental and necessary to putting on the finishing hardware, is not required, nor any rough hardware such as sash weights, pulleys, and sash chains.

2. **Samples.** The successful bidder will be required to submit to the Architect for approval within two weeks from date of the award of contract, a complete line of samples properly labeled and covering the various items, showing the character, finish and construction of each different piece of hardware he proposes to furnish. Samples so shown will be retained by the Architect and applied upon the entire amount of hardware to be delivered under the contract. If the hardware delivered is in any particular inferior to the approved samples, such shall be rejected and replaced with satisfactory material.

3. **Packing and delivery of material.** All hardware shall be delivered plainly marked so that its location in the building may be discovered without breaking the package. Each bidder must deliver all goods in perfect condition, transportation charges prepaid, at the building in Madison, within ninety days of re-

ceipt of order. They will there be inspected by the representative of the Architect and receipt will be given for same.

4. **Inspection by contractor.** The party furnishing hardware must co-operate with the general contractor in setting the hardware, instructing the foreman as to setting whenever necessary, making occasional inspection to see that items are properly applied in the manner in which they are intended to be used and report any improper use of same to the Architect.

5. **Quality and pattern of hardware.** Hardware throughout shall be of the types and kinds hereinafter specified, shall be of the best manufacture, free from defects and blemishes, shall be furnished complete with all necessary screws and bolts, finished to match and shall be subject to the approval of the Architect. The Contractor shall furnish as soon as the contract is awarded a duplicate schedule of all work. All hardware shall be based on solid brass.

6. **Entrance and basement hardware finish.** The basement entrance-door hardware shall be solid cash brass metal, old dull brass finish. All other hardware in basement shall be rustless iron finish.

7. **Hardware finish in other parts of the building.** The finish of all other hardware throughout the building shall be old dull brass.

8. **Design of hardware.** All numbers of articles of hardware mentioned in this specification, unless otherwise stated, refer to Norwalk Lock Co.'s manufacture, and no deviation from these specifications will be allowed without the written consent of the Architect.

CHARACTER

9. **Knobs.** Knobs throughout the building to be of Fontenoy design of cast metal, and shall have the outside knob pinned fast to steel spindles, and the inside knob made adjustable by a threaded thimble. The shanks of knobs to have machine finished bearings, fitting closely into corresponding machine finished thimbles on the escutcheons so that the knobs will fit snugly and be free from rattle.

10. **Escutcheons.** Shall be of solid brass Fontenoy design Norwalk Lock Co.'s catalogue, pages 32, 33.

11. **Locks.** Locks throughout the building to have solid brass bolts, hubs and strike; lips of strike being of proper length

to properly protect the woodwork. Box strikes shall be furnished in all cases, except for double doors plain strikes. Faces of all locks and flush bolts where exposed on the edge of doors are to be rounded, bevelled, or flat, in each case to match the form of the edge of the door.

12. Master key system. All locks forming part of the master key system shall be one manufacturer's goods. Other items need not necessarily be of one make, provided the material and finish are in the opinion of the Architect in accordance with the requirements of the specifications.

13. Butts. Basement entrance-doors shall be hung with No. 3891-1 $\frac{1}{2}$ six-by-seven-inch self-lubricating butts, three to each leaf. Double-acting doors shall be hung with the Yale checking floor hinge for concrete floors. All other doors shall be hung with seven-by-six-inch ball-tipped extra heavy wrought-steel butts, with ball-bearing joints, three to each leaf. Door-transomsashes shall be hung with four-by-five-inch hinges, two hinges for these not over three feet wide, and three for those over three feet wide. Dwarf doors shall be hung with three-by-three-inch ball-tipped wrought-steel butts, two to each door. Provide three butts for all doors seven feet high.

14. Top and bottom bolts. All double doors shall have the "stationary" leaves provided with No. 9834 top and bottom bolts of suitable lengths with rounded faces, and improved stops.

15. Door holders. All outside doors, and doors having liquid door checks, shall be provided with foot pressure holders.

16. Door-checks. The swinging leaf of basement entrance door shall have a Blount liquid door check and spring, size D. Blount liquid door check and spring and foot-pressure door-holders are wanted on the following additional doors, of correct size for the work:

Door from room 40 to stairs at north end of main building.

Two doors from Stack I to room 230.

Door from Stack I to room 232.

Door from room 416 to room 430.

Door from room 417 to room 432.

17. Kick-plates. Entrance-doors and all double-acting doors shall have 14 gauge solid brass bevelled kick-plates, two to each leaf, full height of the bottom rail of the doors.


18. Locks. All locks shall have two cylinders and shall be master key locks. The entrance-door shall have No. 702 lock.

The swinging leaf of double-acting double doors and double-acting single doors shall have No. 8394 mortise deadlocks with rounded faces. All doors, not included above, shall have No. x8417 mortise locks, with two cylinders.

Besides the general master key work, the following locks shall be master keyed thus:

Doors from old building to room 40 shall have cylinder mortise knob lock, escutcheon, etc., master keyed to old north side first story system. Other basement inside doors, including doors to tunnel, bit locks on basement master key. First story door to basement stairway, cylinder mortise knob lock, master keyed to old north side first story system; doors to room 131 from stack G and room 130 (see diagram), cylinder mortise knob locks on same system. Second story doors from stack I to rooms 230 and 232, cylinder vestibule latch, master keyed to old north side second story system, these three locks to be identical with lock to present room 220 from corridor in main building. Double swing doors to stack, cylinder dead lock on north side second story master key system. Third story doors to stack K, cylinder mortise knob-locks, on north side third story master key system.

On the fourth story, double doors from corridor to room 416, and door to elevator from room 417, cylinder mortise knob locks, master keyed to fourth story system. Door from room 416 to room 430, door from room 417 to room 432, and door from 417 to room 418 (lavatory) cylinder vestibule latch, master keyed to fourth story system. Other doors on fourth story, mortise dead locks on master key system of old building.

 But previous to selection and installation of locks, the Contractor shall consult with Architect as to details of above key system, and receive his special endorsement, in order that there may be no misapprehension as to carrying out Owner's wishes.

19. **Lock trimmings.** Outside entrance-doors shall have a pair of handles and plates, No. 8140 Fontenoy design. Single swinging doors shall have one pair No. 8651 Fontenoy knobs, and two No. 8475 Fontenoy escutcheons.

20. **Sash-locks.** Double sliding-sash shall each be provided with one No. 4925 meeting-rail sash-locks, two No. 8101 bar sash-lifts on bottom rails of lower sash, and one flush pull-plate on top rail of upper sash; also provide one pull-down hook and rod for each room.

21. **Sash-pivots.** All windows except those shown to be double-hung shall be pivoted horizontally with Howarth's reversible sash-centers, of size sufficient for the work. This includes also all windows in interior partitions.

22. **Sash and transom catches and lifts.** Every pivoted sash shall be provided with a transom catch No. 8206 and two No. 8101 bar sash lifts.

23. **Transom-lifters.** Transoms over doors shall be provided with Payson's Sure Grip transom-lifters.

24. **Coat-hooks.** Provide two No. 8822 hat and coat hooks for the toilet cabinets on second and fourth stories.

25. **Base-knobs.** Provide cast brass rubber-tipped base-knobs to protect the walls where necessary, as required.

26. **Screws.** Furnish all screws necessary for fastening the above specified hardware in place.

Finally. This contract contemplates and comprises a perfect and complete job of carpentry and interior wood finishing, and anything necessary to that result is hereby included the same as if particularly mentioned, described and detailed upon the plans and details. When completed the Contractor shall remove all debris, tools and apparatus of every sort belonging to this work, leaving the premises free from anything of the kind.

ROOFING AND METAL WORK

Note. Read the General Conditions at the beginning of the specifications. Every requirement therein contained applies to this contract the same as if here repeated. Note the General Statement about proposals, on pp. 10 and 11, and estimate in accordance therewith.

1. **Extent and description of roofs.** The roof over the entire building shall be of felt, with tar composition and dry screened gravel. Glass roofs will be done by others.

2. **Composition and gravel roofs.** On the concrete surface of the roof shall be laid a five ply coal-tar pitch, felt and gravel roofing to be constructed as follows:

The tarred felt shall weigh not less than fourteen (14) pounds per one hundred square feet, single thickness. The pitch shall be coal-tar pitch, distilled direct from American coal tar, and there shall be used not less than two hundred (200) pounds (gross weight) per one hundred square feet of completed roof.

Conduct of work. Coat the concrete with hot pitch mopped on uniformly. Over the above coating of pitch lay two thicknesses of tarred felt, lapping each sheet seventeen inches over the preceding one and mopping back with pitch the full width of each lap. Over the felt thus laid spread a uniform coating of pitch mopped on. Then lay three full thicknesses of tarred felt, lapping each sheet twenty-two inches over the preceding one. When the felt is thus laid, mop back with pitch the full width of twenty-two inches under each lap. Coat the entire surface with pitch uniformly mopped on and finish with a coat of dry screened gravel from $1\frac{1}{4}$ inch to $\frac{3}{4}$ inch diameter, using about 200 pounds per 100 square feet of surface. Furnish a written guarantee to keep all composition roofs watertight for a term of five years.

METAL WORK

3. **Materials.** Sheet metal and tin shall be the best of the kind specified. Tin work shall be done with Scott's 1X extra

coated registered hammered open hearth tin, approved by the Architect; galvanized iron work with Juniata or Apollo brand No. 24 and No. 26 gauge. All metal work of every sort shall be painted on the underside with iron mineral paint of a brand approved by the Architect.

4. Flashings on composition roofs. The composition roof will be pitched to the interior down spouts. The valleys and flashings shall be of felt.

Flash with felt and composition about all skylights, curbs, scuttles, and vents; make water tight connection to all parts, flashing to extend 8 inches upon vertical parts and 12 inches upon the roof with tin counterflashings where necessary.

5. Galvanized iron gutters, etc. The main gutters shall be of galvanized iron. They shall be formed with false bottoms and expansion joints for changes of temperature and where wide shall have one standing seam in the middle throughout the length of the gutter. The flashings and gutters shall be arranged for free action in all temperatures without damage to the work.

6. Water heads. Form large galvanized iron water heads with overflows for all down spouts and connect to the downspouts where provided. Provide copper wire baskets for all downspouts.

7. Skylights. Skylights will be of iron furnished by others.

8. Roof vents. Place galvanized iron globe vents upon the roof where shown, each to be equal in area to the combined area of all flues discharging into it. Each vent is to be substantially built and braced and connected to the roof in an absolutely water tight manner.

Finally. This contract contemplates and comprises a perfect and complete job of roofing and sheet metal work and anything necessary to that result is hereby included the same as if particularly mentioned, described and detailed upon the plans and details.

When completed the Contractor shall remove all debris, tools, machines and apparatus of every sort belonging to this work, leaving the premises free and clear from everything of the kind. The Contractor shall keep the composition roofs in a water tight condition for five years after the completion and acceptance of the building. Tin roofs shall be kept water tight for two years.

PLASTER WORK

Note. Read the General Conditions at the beginning of the specifications. Every requirement there contained applies to this contract the same as if here repeated. Note the General Statement about proposals, on pp. 10 and 11, and estimate in accordance therewith.

1. **Heating.** The Owner will supply heat for drying plaster should such be necessary.

PLASTER MATERIALS

2. **Water.** The Contractor shall supply water for plastering work. Such water can be purchased of the City of Madison or from the University at regular rates.

3. **Sand.** Plastering sand shall be clean coarse bank sand free from quicksand, loam, clay, or other materials, screened through a fine screen.

4. **Extent of plain plaster-work.** All walls, ceilings, partitions, steel columns, girders and other parts shall be plastered. Note the new tile partition in Room 118, shown on drawings, which shall be plastered like other work.

5. **Metal furrings.** All outside walls above the basement, and the jambs and heads of windows in connection and all steel columns shall be furred with $3\frac{1}{4}$ " x $3\frac{3}{8}$ " steel channels set at 16 inch centers and rigidly secured in each foot of height to the walls, floors and ceilings with metal anchors, straps, etc. Channels and anchors shall be thoroughly coated with asphaltum.

In the basement the walls and ceilings, posts, etc., will be furred with fire proof tile by others, upon which the plastering shall be applied. Above the basement, this Contractor shall furr the exterior walls with $3\frac{1}{4}$ " x $3\frac{3}{8}$ " steel channels set at 16" centres, and apply metal lath leaving a $3\frac{1}{4}$ " air space behind the plastering as shown on details. The ceilings will be of tile. Steel columns above the basement shall be furred by this Contractor with $3\frac{1}{4}$ " x $3\frac{3}{8}$ " channels, covered with steel lath and

plastered two coats, and again furred in the same manner and lathed and plastered as below specified. All steel furring and lath shall be rigidly secured and surfaces shall be made plumb, straight and true.

6. **Metal lath.** All exterior walls, structural columns, window jambs and heads above the basement shall be lathed with A27 gauze ingot iron herring bone expanded metal lath made by the General Fireproofing Co. of Youngstown, Ohio, thoroughly coated with asphaltum paint. Lath shall be rigidly wired to each metal furring once in each 6 inches of height, with No. 20 soft iron wire. Surfaces shall be made plumb, straight and level, and every part secure. Joinings to tile ceilings and partitions shall be made by lapping the lath at least 2 inches upon the tile and securing with nails, clips or wire. The ceiling of the tunnel shall be lathed on the wooden furring strips in the same way.

7. **Mortar.** Brown mortar for plastering shall be hard mortar, equal to Adamant. The finish sand coat shall be white mortar, either patent finishing material or best quality lime putty, four parts, and plaster of Paris one part, with about ten per cent white sand.

CONDUCT OF WORK

8. **Ordinary plastering.** All plastering shall be three coat work. The first coat to be a scratch coat, the second a brown coat well floated and worked to a smooth surface and made straight, plumb and true to the grounds. Where the plaster is applied directly to concrete a $1\frac{1}{4}$ inch coat only of white finishing material shall be used. The white sand coat shall be trowelled smooth and made to cover all parts perfectly. All ceilings shall be made perfectly level and smooth, walls shall be straight, plumb, and flush with grounds, angles sharp and true.

9. **Debris.** Remove all debris from the premises and leave the floors broom clean on completion of the work.

Finally. This contract contemplates and comprises a perfect and complete job of plain and ornamental plastering and anything necessary to that result is hereby included the same as if particularly mentioned, described and detailed upon the plans and details. When completed the Contractor shall remove all debris and apparatus of every sort belonging to this work, leaving the premises free from anything of the kind.

PAINTING AND GLASS

Note. Read the General Conditions at the beginning of the specifications. Every requirement therein contained applies to this contract the same as if here repeated. Note the General Statement about proposals, on pp. 10 and 11, and estimate in accordance therewith.

PAINT MATERIALS

Lead and oil paint shall consist of National White Lead Company's pure white lead, combined with American Linseed Oil Company's pure kettle boiled linseed oil.

Sheet metal paint. The first coat on all sheet metal shall be a priming coat of Venetian red iron mineral paint in linseed oil.

Filler shall be Wheeler's or Bridgeport Wood Finishing Company's wood filler.

Shellac shall be transparent grain alcohol shellac.

Stairs shall be approved brand of oil stain, such as the Standard Varnish Company's Klearstone oil stains.

Spar varnish. Shall be Pratt & Lambert's spar finishing varnish or other based on \$4.50 per single gallon list.

Ordinary varnish shall be Murphy Brothers' transparent wood finish, interior and exterior, Pratt & Lambert's 38 Preservative, Berry Brothers Luxberry wood finishes or other varnishes based on \$3.00 per single gallon list.

Enamel shall be Ripolin Enamel, Pratt & Lambert's Vitralite enamel or other approved enamel based on \$5.00 per single gallon list.

Wall paint. All coloring on plastered walls and ceilings shall be done with Patek Brothers' matteote over a preliminary coat of priming of the same manufacture, or with "Velveta" manufactured by the Colonial Works, Brooklyn, N. Y., or "Trusscon" Aseptiote or other approved plaster paint. Such paint shall be applied in strict accordance with manufacturers' specifications.

All painting on plaster shall dry perfectly flat and smooth, and shall cover all parts fully, showing no stain or blemish.

Cement paint shall be the Trussed Concrete Steel Company's floor enamel, Stone-Tex, Patek Brothers' Cement Coating or other approved concrete paint.

Colors. The Architect will decide upon all colors.

Mixing. No mixing shall be done except in the paint room. In this room, should the floor become paint coated, stained or otherwise injured, it shall be taken up and replaced at the cost of the painting contractor. This clause applies also to any floors damaged by the painter.

EXTENT OF WORK

Note. Examine the specifications for carpenter work, sheet metal, lath and plaster, and iron work, for division of work as well as the plans for quantities. All material requiring paint or varnish shall be covered by the Contractor, except that the painting of structural steel members of the floor construction and columns will be done by others. The schedule of work describes the amount of work in a general way. Wood, metal, tin and sheet metal without exception (and where specified, concrete, plaster, and cement) shall be covered. Note the new partition and doors in Room 118, which shall have the same painter's finish as other parts.

CONDUCT OF WORK.

1. **Stopping, filling and puttying.** Give all knots and sap a coat of stopping varnish before priming. Nail holes and imperfections shall be puttied up with putty colored to match the finish. All imperfections shall be made good before covering.

2. **Outside painting.** Outside wood and metal work shall have three coats of paint. On wood work the paint shall be lead and oil; on metal work one coat of iron mineral and two of lead and oil, sanded with white sand on galvanized iron cornices, where such are specified. Exterior iron work shall have three coats of lead and oil, except area gratings two coats of asphaltum.

3. **Outside varnishing.** Entrance doors and outside frames shall be stained, filled and given three coats of exterior spar varnish.

4. **Roof painting.** All tin and metal work upon and about the roofs shall have one coat of iron mineral paint and two of lead and oil.

5. **Interior work.** Where oak is specified for finish it shall be stained, filled and given three coats of varnish rubbed down to a smooth egg-shell polish approved by the Architect. Where birch or pine is specified it shall be stained and varnished as above, or shall be enamelled as below specified.

6. **White enamel work.** White enamelled work shall consist of three coats of lead and turpentine and two of enamel.

7. **Metal painting.** All exposed metal work shall have three coats of paint. Ornamental iron shall have a dead lusterless finish.

8. **Backing the finish.** All inside finish of every sort shall have one heavy coat of lead and oil on the back.

9. **Sash painting.** All sash shall be given three coats of white lead and oil.

SCHEDULE OF WORK ON INTERIOR

10. **Basement.** All work gray enamelled, except outside doors stained and varnished. All iron work painted. All plastered surfaces shall be painted with plaster paint. The brick walls and ceiling of the tunnel shall be white, enamelled with special concrete enamel paint.

11. **First, second, third and fourth floors.** All work white enamelled. Plastered surfaces painted with plaster paint. Work in conjunction with old work shall be finished to correspond with it.

12. **Museum walls.** In rooms 416 and 417, the wooden walls are to be covered with best quality of seamless prepared burlap, color to be selected by the Architect. This material is to be attached to slats placed by the carpenter. The burlap covering is to be finished with suitable moulding, as provided in section 23 of carpenter work.

GLASS—MATERIALS

13. **Rolled glass** shall be first quality or hammered plate.

Plate glass shall be first quality American plate free from sand blemish, spots, stains, cracks, bubbles or other imperfections.

Best double thick glass shall be extra selected AA double strength glass selected at the factory, and without wind, cords, sand blemish, stains, distortion or other defects.

Common glass. Common double thick shall be the ordinary AA double thick glass free from faults affecting its strength and durability and of usual good form.

Florentine glass shall be the best quality pressed glass, double strength; except in doors, Florentine plate.

Mirrors. All mirrors shall be of plate glass, silvered in the best manner and free from defects of image and other faults affecting appearance and durability.

Prism glass shall be first quality sheet glass prisms.

Setting. All glass shall be set in putty well bedded, tacked and left clean and whole on completion of the work.

Door lights and mirrors will have wood stops.

GLASS: EXTENT OF WORK

14. **Plate glass.** All windows and storm windows shall have clear plate glass; except interior windows, Florentine plate glass. Basement entrance doors shall have rolled plate glass panels. Door from room 230 to room 232 (second floor) plate glass panel, together with the door to room 220 from room 230. From room 313 in old building to stack K the door to have plate glass panel.

15. **Florentine glass.** All doors in the interior of the building shall have Florentine pressed plate glass panels in upper portions, as noted. Doors from room 40 in the basement to the old building shall have Florentine plate panels. Doors to tunnel the same. Other basement doors shall be solid. Doors to rooms 130 and 131 on first floor Florentine plate panels. Doors from rooms 230 and 232 to stack I Florentine plate panels. Doors to rooms 416, 417, 418, 431 and 432 Florentine plate panels. Transoms and other windows in partitions, and all ceiling lights shall have Florentine pressed plate glass.

16. **Other glass.** Furnish rolled plate glass for basement entrance door-lights and transom.

17. **Mirrors.** Furnish and set two plate glass mirrors, 20 inches high, 24 inches wide, in the toilet cabinets. Each mirror to have a nickel plated frame about one inch wide.

Finally. This contract contemplates and comprises a perfect and complete job of painting, varnishing and glass work, and

anything necessary to that result is hereby included the same as if particularly mentioned, described and detailed upon the plans and details. When completed the Contractor shall remove all debris, tools, machines and apparatus of every sort belonging to this work, leaving the premises free and clear from everything of the kind.

PLUMBING AND DRAINAGE

Note. Read the General Conditions at the beginning of the specifications. Every requirement therein contained applies to this contract the same as if here repeated. Note the General Statement about proposals, on pp. 10 and 11, and estimate in accordance therewith.

1. **General.** This Contractor shall furnish all material and labor and build and construct in a good and substantial manner and place in the building the sewers, drains, and all piping for water supply, waste, ventilation of wastes and the plumbing fixtures, making the system of water supply, use and waste, complete and ready for service, and all piping and appurtenances in the same manner shown upon the plans and set forth in the specifications, to wit:

2. **Ordinances.** This Contractor shall comply with all the ordinances of the city of Madison, Wisconsin, in relation to opening or obstructing streets, sidewalks, or alleys, maintenance of barriers, lights, connecting to public sewers and to the water mains, etc. in any way affecting this work, and shall hold the Owner harmless from all penalties or damages arising from his neglect so to do.

The rules and ordinances of the Plumbing and Sewer Department of the city of Madison, Wisconsin, shall govern the installation of this work.

3. **Permits.** This Contractor shall take out at his own cost and expense all required permits if necessary to open the street and for connecting with the public sewer and water mains.

MATERIALS

All material used in this work shall be new and best of its kind. All pipes and fittings shall be of the inside diameter designated.

4. **Cast-iron pipes.** Cast-iron waste and soil pipe shall be extra heavy soil pipe in lengths of five feet, smooth inside, with outer and inner surface concentric, sound and free from defects and of iron which will cut well. The average weight per foot for each pipe including hub, shall not be less than the following:

5" pipe	17 pounds per lineal foot
4" pipe	13 pounds per lineal foot
3" pipe	9½ pounds per lineal foot
2" pipe	5½ pounds per lineal foot

Cast-iron vent pipes and interior rain water downspouts where shown shall be of standard weight. Any pipe cracked in cutting or otherwise shall at once be removed from the building and shall not be used in any part of this work. Where plumbing wastes cannot be concealed, use Durham system recessed joints and fittings.

5. **Cast-iron fittings.** Fittings for cast-iron pipe shall be soil pipe fittings of the same inside diameter as the pipe with which they are used, and of equal quality and quantity in all their parts, and where shown shall be fitted with hand holes closed with brass top screws. All cast-iron pipes and fittings for same shall be coated inside and outside while hot with tar finish. Fittings for vent pipes shall be of standard weight.

6. **Supports for piping.** All brackets, clamps and hangers shall be wrought iron, constructed to the satisfaction of the Architect.

7. **Lead.** Caulking lead shall be of soft pig, and gaskins shall be picked oakum. Sheet lead for safig shall weigh three pounds per square foot.

EXTENT OF SEWERS AND DRAINS

8. **Iron sewers.** All the sewerage and all the rain water drains inside of the building shall be extra heavy cast iron in lengths of five feet, caulked together with picked oakum and molten lead, each joint to be run full at two pourings, thoroughly rammed in place and neatly trimmed. Fittings used in the iron sewerage shall be of the same weight and calibre as the pipe.

9. **Test.** After the iron sewerage soil and vent lines are all in place, and before connection is made with the tile sewer, plug up all openings. Fill the system with water at normal pressure

and leave until inspected and approved by the Architect. If any leak occurs the defective parts must be entirely removed and new material substituted and the test again repeated until made satisfactory.

10. Soil and waste pipes. All risers for soil and waste pipes shall be 4" extra heavy cast-iron pipe, connected to sewer and extended to within one foot of the roof, increased 2 inches and extended 2 feet above the roof. All connections through which waste water is to run shall be made with "Ys" or sanitary "Ts." Sink wastes shall be 3" diameter, basement floor drains 4" diameter. Each pipe to be secured with a hook under the hubs or fittings with a floor rest where possible. Any deflection from the vertical shall be made with 45 degrees elbows. Square offsets must not in any case be used.

11. Ventilation pipes. All pipe for branch ventilation pipes shall be galvanized wrought iron pipe.

12. Rodding fittings. In each soil and waste pipe at a point 6 inches above the sub-basement floor insert a "Y" fitting with brass ferrule and trap screw for rodding purposes.

13. Flashings. All pipes passing through the roof shall be flashed at roof lines with four pound sheet lead, extending 18 inches out on the roof and a piece of lead pipe of equal weight wiped to the lead flange, running to the top of the pipe and turned over and down into the same 1 inch.

14. Down spouts. All interior down spouts where shown shall be 5 inch soil pipe in five foot lengths, yarned and caulked as before specified. They shall be extended beneath the basement floors with cast-iron pipe of above quality to the present drainage system. The roof joints shall be flashed with 4 pound sheet lead and made water tight. Down spouts will be supplied with brass strainers and wire baskets.

15. Gravel basins. Two downspouts from gravel roofs shall have gravel basins 18" diameter, of cast iron like the J. B. Clow Company basin A1465, with hub inlet and outlet. Other downspouts shall be connected to present basins.

16. Area drains. Place a cast iron area drain in the driveway to the basement door, connected to the catch basin in the old building with cast iron pipe.

17. Setting branch vents. The trap of every fixture in the building shall be vented from the crown of the same and from lead bends of water closets. Branches for ventilation of traps

shall be set so that all openings shall be left above the outlet of fixture and at such height as to give continuous rise to the connection from crown of trap. Risers for ventilation shall be run adjacent to the waste risers, supported at every floor. Where a branch crosses a room, corridor or doorway on any floor it shall be run in the floor above and dropped down to the fixture.

18. **Vent openings** for ventilation of traps shall be as follows:

Basin traps	1½"
Slop sink traps	2 "

19. **Branch waste pipes.** Branches for waste pipe shall be of the following sizes:

Lavatory wastes	1½"
Sink	2 "

20. **Traps.** Each fixture shall be fitted with a trap set in all cases as close as possible to the outlet of the fixture.

21. **Excavation.** This Contractor shall do all excavation necessary in the construction of the work included in this specification, and all sheathing and bracing with proper materials which may, in the opinion of the Architect, be necessary for the protection of the foundation for the walls of the building, and shall keep all excavation free from water by pumping or bailing during the progress of the work. A line shall be used to mark out the trenches for sewers, and there shall be no variation from the plan except on written order of the Architect. All sewers in the ground shall be laid in open trenches no less than two (2) feet wide in the bottom.

22. **Filling.** This Contractor when laying iron or tile sewerage shall fill up his trenches, soak them, bring them to a uniform level with the surface of the ground and notify the Architect when this work is being done. The plumber is to co-operate with the sewer building so as to secure the most perfect results.

23. **Removal of earth.** After back filling, as before specified, this Contractor shall remove from the building all surplus earth resulting from this work, and dispose of same at his own expense.

WATER SUPPLY WORK

24. **Supply and waste pipes.** All supply pipes not otherwise specified shall be galvanized wrought iron pipe. For wastes

and ventilating connections light lead pipe shall be used weighing as follows:

1½" pipe	2½	pounds per lineal foot
1½" pipe	2	pounds per lineal foot
2 " pipe	5	pounds per lineal foot

All exposed pipe or fittings in and about plumbing fixtures shall be N. P. brass from fixtures to wall, iron pipe size.

25. City water supply. From the city water supply pipe in room 28 of the basement of the main building, about 20 feet from this wing, extend a 5½" galvanized iron pipe, with check and waste, to rooms 230 and 418, and place a nickel plated pantry cock over each lavatory connected thereto, one on second story and one on fourth story, so that city water for drinking purposes may be drawn. Also extend a 5½" supply with N. P. sink cock to the slop sink in room 44 in the basement. Place a check and waste cock on this line.

26. Lake water supply. From the present lake water main in the old building extend a 1" pipe riser, to the fourth floor of the wing. Place a check and waste cock on this line.

27. Mason's supply. Extend the lake water supply for use of mason contractor when called upon to do so, and place a ¾ inch supply for mason's use and remove same when directed.

28. Fixture supply pipes. For each wash bowl and slop sink extend a 5½" branch supply. Place a shut off on each branch next to the fixture. To each lawn sprinkler extend a ¾" branch with check and waste, and shut off.

29. Hot water supply pipes. Each bowl and slop sink in the building shall be supplied with hot water through a 5½ inch galvanized iron branch extended from a ¾ inch galvanized iron riser, which riser is to be connected with a plugged hot water main, now in place on the ceiling of the basement of the old building, about ten feet distant. Each hot water riser shall be circulated by a ¾" galvanized iron return, from the highest point, which return is to be connected with a plugged return main now in place on the ceiling of the basement of the old building, about ten feet distant. The ¾" hot water pipe shall be valved in the basement on riser and circulation return. Each branch to a fixture shall have a shut off next to the fixture.

30. Joints. Joints in and to wrought iron pipes and fittings shall be made with threads fully coated with red lead and oil and screwed up with proper tongs and wrenches. Joints in and

to cast iron pipes and fittings shall be made with gaskins and lead caulked as before specified for sewers. Joints in lead pipe or on lead pipe to brass fittings shall be of solder neatly wiped. All joints shall be finished smooth inside.

31. **Tests.** All supplies below ground shall be submitted to the usual water test before trenches are filled in, and the Architect is to be notified when pipe will be ready for this test.

32. **Pipe covering.** All supply pipes for hot water where exposed on ceilings, and all exposed risers shall be covered with an approved pipe covering and painted one coat of alum size and two coats of lead and oil paint. Cover the exposed cold water pipes with Johns-Manville Company's "Anti-Sweat" coverings two thicknesses $\frac{1}{2}$ inch thick, joints broken; inner section not canvassed; outer canvassed. Longitudinal joints stapled, and covering painted as above.

33. **Stop cocks and valves.** On all main feed lines, also where branches are taken out of vertical pipes to supply fixtures to the various floors, place Crane's brass gate valve, the same size as pipe in which they are set.

34. **Bibbs.** All bibbs and faucets for controlling hot and cold water shall be of pattern equal to the L. Wolff Company, Boston, combination compression pattern. All shall be heavy nickel plated on brass.

The style of bibbs and cocks shall be as follows:

Sink bibbs similar to L. Wolff F-565.

Other bibbs and cocks as specified under fixtures.

35. **Tags.** Each stop cock and valve throughout the building, except in walls, shall have a large brass tag with the name of the fixture stamped on the same in black letters.

36. **Capenter work.** All carpenter work for grounds, supports, etc., in setting the fixtures and marble included in this specification will be done by the carpenter under direction of this Contractor.

FIXTURES

37. **Wash bowls.** Furnish and place where shown, one on second floor and one on fourth floor, two Rundle-Spence Co. white enamelled wash basins, bowls 12" x 15" with nickel plated combination compression hot and cold water cocks, nickel plated traps and supplies above the floor. Bowls to have a combina-

tion slab and 12" back, and right and left ends. Outsides of bowls enamelled. Each bowl shall have a nickel plated towel rack, soap dish, and brush and comb holder. All to be inclosed in the cabinet furnished by others.

38. **Slop sinks.** Furnish and set on each floor, except second floor, and on each mezzanine floor, Rundle-Spence Co. enamelled iron slop sinks 20" x 24" x 12" on painted iron trap standard (plate 590). Furnish and place two 5/8" hot and cold water compression cocks nickel plated and nickle plated strainer, supply and waste pipes. All fixtures to have hot and cold water supply.

39. **Schedule of fixtures** in the building:

Wash bowls	2 (one in room 230, one in room 418)
Slop sinks	7
Lawn sprinklers	1 only

HEATING AND VENTILATION

By H. J. Thorkelson, Consulting Engineer

Note. Read the General Conditions at the beginning of the specifications. Every requirement there contained applies to this contract the same as if here repeated. Note the General Statement about proposals, on pp. 10 and 11, and estimate in accordance therewith.

The fans and indirect radiators necessary to supply fresh air to the ducts in this building are located in the old library building immediately east. Galvanized iron ducts, intended to serve this building, are in place in the old building. The sealed ends of these ducts shall be opened and the ducts extended as shown on the plans. Main steam and main return pipes are provided in the old library building, now plugged. From this main steam pipe the steam main shall extend, and the return shall be brought to this main return pipe. A main pipe for compressed air also is located at the same point, from which the temperature control work shall start.

1. **Extent of work.** This specification is intended, and must be construed, to cover a complete system of single pipe direct steam heating of the entire wing, together with such ducts and heating and ventilating equipment as shown or specified. The location, size and type of radiators in each room is indicated on the building plan, together with the ducts, etc., to form a complete and sufficient heating and ventilating apparatus. The diagram shows the arrangement of the piping and necessary connections to the steam and return lines of the present heating system of the old library building. Screwed openings are provided at the points indicated. This contract shall include the necessary connections at these points and all the necessary labor, material, scaffolding, tools, blocking, all mechanical appliances, transportation, permits, etc, for the erection of a first-

class heating and ventilating apparatus as specified, completed in a first class manner and left in excellent operating condition.

2. **Extra work.** No extra payments will be allowed except for changes which require additional amounts of material or labor resulting in an increased capacity of the apparatus, and then only when such extras are agreed upon and ordered in writing by the Architect.

3. **Office of the drawings and specifications.** Data given herein and on the plans is as exact as can be secured, but its strict accuracy in detail is not guaranteed. The Contractor shall examine the location and building carefully to verify and make such measurements, adjustments, etc. on the ground as he may need for the work.

4. **Temporary heat.** The Contractor is to include no estimate for temporary heating, but such work will be paid for as an extra at prices to be agreed upon before the work is begun. The Owner will furnish all steam needed for temporary heating. If temporary heat is required, the Contractor shall set temporarily such radiators as may be needed and reset them when requested by the Architect.

5. **Guarantee.** The Contractor must guarantee that all the material furnished by him is perfect in every respect, and if so ordered by the Architect he shall at once remove any defective material and replace the same with material of proper quality. He shall guarantee to replace any material or parts which show defects within a period of one year from the acceptance of this contract. He must guarantee also that the apparatus when installed will be in strict accordance with these specifications, that the equipment will be noiseless in operation, that circulation will be maintained with five pounds gauge pressure in the radiators and that all air and water condensation will be quickly removed from the steam mains at all times, whether the returns discharge to the university return line or to the sewer.

6. **Material and labor.** All material and labor shall be first class and workmanlike and to the satisfaction of the Architect, and shall be subject to his inspection, test and approval at all times from the commencement of the work until the acceptance of the completed contract. The Contractor must get his material on the ground at the earliest moment and work as many men as

possible on the installation, supplying them with an ample force of laborers. It is imperative that this work be installed as rapidly as the progress of the building requires.

7. **Installation.** The heating contractor shall install his work when ordered by the Architect.

8. **Preparation for testing.** Upon completion of the work the entire apparatus is to be thoroughly blown out with by-passes open.

9. **Testing.** The final settlement with the Contractor will not be made until the system has been thoroughly tested and found to be in good order and in first class operating condition in every particular. This test shall consist of subjecting the entire system to a pressure of 10 pounds per square inch for a period long enough to discover all leaks and make them tight and to correct any other defects observed, so that the system shall be made satisfactory to the Architect.

10. **Cutting and repairing.** The Contractor shall do all necessary cutting of walls, partitions and floors, and shall patch up around such cutting in such manner as to leave the building in good condition. All such cutting and restoration is to be performed under the direction and to the satisfaction of the Architect and at the expense of the heating contractor.

HEATING SYSTEM

General. This building is to be heated by direct radiation with radiators and piping located as shown on the plans.

11. **System.** The system of direct radiation for this building will be of the one pipe, direct steam type.

12. **Mains and returns.** The plan shows the location and size of the steam mains and return lines. The steam mains shall be suspended from the ceilings following the general plan shown on the drawings and the return mains are to run as shown on the drawings.

13. **Controlling valves.** The contractor shall provide a gate valve on the building main near the connection to the heating system for controlling the entire heating system of the building. He shall provide also valve on the return line near the outlet for the same purpose.

14. **Hangers and supports.** The steam mains hanging from

the ceiling shall be supported by extension hangers spaced according to the following schedule:

$\frac{1}{2}$ to $1\frac{1}{2}$ " pipe	8 ft. centers
2 to $3\frac{1}{2}$ " pipe	10 ft. centers
4 to 6 " pipe	12 ft. centers
7 to 8 " pipe	14 ft. centers

15. **Flanges.** Wherever directed by the Architect, the Contractor shall install flanged unions in place of screw joints to facilitate repair work.

16. **Pipe and fittings.** All pipe to be used in this work shall be standard genuine wrought iron pipe of A. M. Byer's manufacture or equal approved by the Architect, straight and true, with clean cut taper threads, free from all defects. The pipe shall be set on end and pounded to remove scale before erection and pipe one inch and smaller shall be reamed out full size before cutting. All fittings shall be standard weight cast iron screwed fittings unless otherwise specified.

17. **Piping.** Main steam and return lines shall be run in such a manner that they will have a suitable pitch in the direction of the flow of steam and water in order to avoid difficulty with return of water, and eccentric fittings must be used whenever these pipe sizes are changed. Such fittings, however, are to be installed not less than eighteen inches beyond the riser connection requiring the reduction. The plans show the location and size of the various risers. Each riser shall be provided with a gate valve, installed in such a manner that the radiators on all the floors, including the basement, can be shut off. The connection of the steam risers to the mains shall be made by means of a 45 degree elbow and in such a manner that the expansion will not affect the risers or the radiators. All pipe connections shall be made in such manner that expansion can be properly provided for and neither radiators, pipes nor fittings be subjected to undue strain.

18. **Packing.** The packing for flanges subjected to a pressure of ten pounds or less per square inch shall be Rainbow packing; for pressure above ten pounds Permanite packing or equal shall be used; for all packed valves Palmetto packing.

19. **Valves.** The hand-operated valves for radiators not operated by automatic control valves shall be Jenkins Bros. angle valve type, with unions, rough body, nickel plated. Gate

valves 2 inches and smaller shall be Jenkins Bros. make with brass body and solid wedge gates. Gate valves 2½ inches and over shall be Crane or Jenkins Bros. make iron body valves with solid wedge gate.

20. Radiator valve sizes. The following sizes for radiator valves shall be employed:

From 1 sq. ft. to 24 sq. ft. of radiation, 1 inch valves

From 25 sq. ft. to 59 sq. ft. of radiation, 1¼ inch valves

From 60 sq. ft. to 100 sq. ft. of radiation, 1½ inch valves

Larger than 100 sq. ft. of radiation, 2 inch valves

21. Air valves. Each radiator and coil in one pipe systems shall be provided with a ½ inch Aeme nickel plated air valve. At any point in the steam mains, or return mains, where the Architect finds it desirable, place expansion air valves.

22. Radiators. Cast iron radiators will be used throughout. The plans show the location and size of the radiators. They shall be American Radiator Company's Peerless pattern, or of another similar pattern, approved by the Architect. They shall not exceed 38 inches in height. Above the floor Colonial radiators of the same make shall be used where indicated.

In the museum and other rooms on the fourth story, standard height Peerless radiators shall be used. In rooms 230 and 232 four column low radiators shall be placed in the window recesses. These shall be not over 20 inches high. In the other parts of the building above the basement, Colonial wall radiators shall be installed on iron brackets on the wall. All basement radiators shall be Colonial ceiling radiators, suspended on substantial hangers to the ceiling.

23. Protecting woodwork. Steam pipes shall not be allowed to come in contact with the woodwork. Where woodwork is near, it shall be protected with galvanized iron in a manner meeting the approval of the Architect. Protect all pipes passing through floors or ceilings by suitable galvanized iron ceiling and floor plates. Protect all pipe passing through brick or concrete walls by pipe sleeves securely screwed in place.

24. Covering. All piping shall be tested for tightness to the satisfaction of the Architect before applying covering. All steam and return mains, risers and connections are to be covered with a layer of standard single thickness 35 per cent. magnesia covering made by the H. W. Johns-Manville Company, or other

covering of equal merit, approved by the Architect. No covering shall be applied until directed by the Architect and approved by him. Fittings and valves shall be covered with a plastic cement of magnesia and covered with heavy cotton cloth. All covering work shall be applied in a neat, workmanlike manner, subject to the approval of the Architect, and to present a perfectly uniform surface.

25. **Painting.** All pipes are to be given one coat of asphalt paint. All exposed pipe covering is to be given a coat of alum size, and then two coats of oil and lead. The radiators are to be bronze or painted as directed. The shade of paint or bronze is to be determined by the Architect.

SYSTEM OF VENTILATION

General. The ventilation of the building shall be provided by means of galvanized iron ducts, located as shown on the drawings of the basement, together with such ducts leading to and from the rooms to be ventilated as are shown on the plans. The vents shall be carried to the attic and discharged to Globe vents as shown.

26. **Ducts.** Furnish and install all galvanized iron blast and vent ducts leading to and from the various rooms. They are to be of No. 22 or No. 24 galvanized iron, as directed, and where there are offsets they must be run on easy sweeps. They must be built with double lap seams, well hammered down, and the laps shall be put together with reference to the easy flow of air. From the ducts to the ventilators on the roof construct galvanized ducts equal in area to the entire number of ducts leading to the vent.

The sizes of all ventilating ducts are given on the plans. The dimensions given are inside dimensions. It may become necessary to change these dimensions, but it is expressly understood that the number of square inches of cross section shall remain the same. The change of section of ducts at the point of outlet must be very gradual to secure an easy flow of air from a vertical to a horizontal direction. Those parts of the interior of the ducts which are visible from the room shall be given two coats of paint, the color to be determined by the Architect. A branch duct 6" x 12" size shall be extended into the tunnel at the ceiling for supply of fresh air to same.

27. **Dampers.** Place in all the ducts cut-off dampers to be controlled by hand at the base of the ducts; the dampers shall be arranged in such manner that they can be held securely in any position.

28. **Registers and screens.** Furnish and place over all fresh air and vent openings stamped steel register faces with movable valves operated by chain or other approved device. They shall be provided with countersunk screw holes for fastening to framing. All registers and valves shall be finished in white enamel. The area of the registers shall be in all cases twice that of the cross section of the flue.

AUTOMATIC TEMPERATURE CONTROL

29. **Extent of work.** All radiators in the building shall be controlled by an automatic temperature control system similar to that of the Johnson Service Company of Milwaukee or the National Regulator Company of Chicago. The heating contractor shall include these in his bid stating the particular kind of heating control he intends to furnish.

30. **Control of direct radiation.** The direct radiators shall be controlled by thermostats placed in the various rooms and corridors as listed in the schedule of thermostats. The exact location of thermostats in relation to the radiators, doors, etc. shall be determined by the Architect, as the building progresses.

31. **Air pipe and fittings.** All pipe for this work shall be standard wrought iron galvanized pipe free from defects of any kind.

Fittings shall be malleable cast galvanized iron.

Cocks shall be ground joint plug cocks of best quality and standard weight.

Pipe heads shall be equipped with a tail piece of wire-wound-lead tubing which shall not be less than 2 feet nor more than 4 ft. in length for connection to the wrought iron pipe.

32. **Air piping.** The Owner will supply an air line of sufficient size at a point in the old building within 25 feet of the new wing. This line will be operated at 12 to 15 pounds pressure. From this point the contractor shall carry the air line of sufficient size to supply amply all thermostats in the building. The piping to the various floors of the building shall be valved

in such a manner that the different floors may be shut off without interfering with the remainder of the building. Wherever necessary drip coils shall be placed to remove condensation that may accumulate in the lines.

47. Combined hand and air control. In rooms having more than one radiator, one half the radiator valves, air controlled, shall be equipped with hand screws and lock shield stems for permitting valves to be closed by hand, so that in mild weather these radiators may be cut out.

Finally. This contract contemplates and comprises a perfect and complete job of heating and ventilation, and temperature control, and anything necessary to that result is hereby included the same as if particularly mentioned, described and detailed upon the plans and details. When completed, the Contractor shall remove all debris, tools, machines and apparatus of every sort belonging to this work, leaving the premises free and clear from everything of the sort.

SCHEDULE OF THERMOSTATS

	Number.
Room No. 40.....	1
Room No. 41.....	1
Room No. 42.....	1
Rcom No. 43.....	1
Room No. 44.....	1
Stack G	2
Stack H	2
Cat. Room 230.....	2
Room 232	1
Stack I	2
Stack J	2
Stack K	2
Stack L	2
Room 417	2
Room 430	1
Room 431	1
Room 432	1

ELECTRIC WORK



Separate bids are requested for this work.

Note. Read the General Conditions at the beginning of the specifications. Every requirement therein contained applies to this contract the same as if here repeated. Note the General Statement about proposals, on pp. 10 and 11, and estimate in accordance therewith.

General note. The Rules of the National Board of Underwriters which relate to electric wiring and the approved list of materials and appliances of the same board are made a part of these specifications, and shall be controlling where they do not conflict with these specifications.

The current supply will be taken from the present supply inside the old building.

The mezzanine floors of the wing shall be lighted in the same way as the main floors. This Contractor shall lay out his work in such manner that the conduits and wiring for the mezzanine floors and stairways can readily be installed as soon as the book stacks and mezzanine floors are in place in the wing. This shall be done by leaving branches in the main lines of conduit at each main floor, from which extensions can be made.

1. **City regulations and certificates.** The Contractor shall comply with all the rules and regulations of the city of Madison relating to this class of work, shall arrange for the inspection of the work by the proper authorities and shall furnish the required certificates of inspection and approval.

2. **Tests.** After the completion of the work the Architect will cause tests to be made of the installation as may be considered necessary. If the results of these tests show that the work does not comply with the requirements of these specifications the Contractor shall immediately make all necessary changes to put the work into proper shape and shall pay the expenses of

all subsequent tests or inspection required to determine whether the work is satisfactory or not.

These tests include: (1) the application for a period of one minute of an alternating voltage of 1,000 volts (effective value) between the outside wires of the three wire system. (2) the application, for a period of one minute, of an alternating voltage of 500 volts (effective value) between each outside conductor and neutral wire and between each outside conductor and ground.

3. **Material and labor.** Material and labor shall be first class and workmanlike and to the satisfaction of the Architect; and shall be subject to his inspection, test and approval at all times from the commencement until the acceptance of the completed work.

The Contractor shall submit samples of the materials and finish to the Architect for approval whenever called for, and all materials and workmanship must be equal in every respect to that of the sample approved.

Where the specifications call for the use of a specific article or the equivalent and the Contractor proposes to use the equivalent article, he shall, in every case, first submit to the Architect for approval, samples of the article he proposes to use. Such approval, however, shall not be construed to imply acceptance of such article or material, if it becomes apparent at any time that it is inferior, defective or unsuited to the purpose.

EXTENT OF WORK

Note. This specification is intended and must be construed to cover a complete interior conduit system for electric light wires, telephone wires, and power wires, together with a complete light wire system as described and shown on the drawings, up to and including the main switchboard in the basement, together with all switches, fuses, tablet boards, and wall, baseboard and floor outlets or receptacles wired complete with outlet plugs. Note the new partition in room 118 forming a corridor with lights and switch.

4. **Lighting and power system and other service.** Electric current for lighting purposes shall be distributed by a three wire alternating current system with a potential of approximately 110 volts between each outside wire and neutral, or

220 volts between outside wires. Electric current of 500 volts for power purposes shall be carried to the elevator location in the basement.

5. **Speaking tubes and call bell service.** There shall be a speaking tube in elevator shaft of same character as that in south wing, with mouth-pieces in rooms 44, G, H, 230, J, K, L. There shall be electric call bells in connection with the speaking tubes in the same rooms. Connected with bell in room 44 shall be extensions so that bells will ring at same time in room 42 and in the north end of the old basement (in the room which connects with room 40).

CIRCUITS

6. **Main circuits.** The Contractor shall install one 2" conduit for light extending from the switch-board to the present main in the old building a distance of about sixty feet and shall install a main wire feeder in the conduit.

7. **Feeder circuits.** Feeder circuits are the circuits from the main cut-out switch and thence to the tablet boards located on the various floors. All feeder circuits are to be three wire circuits with the neutral the same size as the outside wires. All three wires constituting a feeder circuit are to be drawn in the same conduit.

8. **Branch circuits.** Branch circuits are the circuits from the tablet boards to the outlets shown in the various rooms. All branch circuits are to be two wire circuits connected to the neutral bus-bar and one of the outside bus-bars of the tablet boards. The branch circuits are to be distributed between the two halves of the three wire system so that both halves will be equally loaded. The two wires constituting any branch circuit are to be drawn in the same conduit.

9. **Telephone circuits.** A telephone circuit system shall be provided and installed from the point where telephone now enters the old building to the various telephone outlets shown on the plans and as below specified. The telephone conduit shall have one outlet in each of the following rooms: 42, 44, 230, 232, 430, 432.

CONDUITS

Note. Loricated conduit or its equivalent is to be used throughout. All elbows larger than $3\frac{1}{4}$ inch are to be manufac-

tured and not bent on the job. Not more than one circuit shall be drawn in any conduit except by special permission of the Architect.

10. Conduit system. The conduit system for the light wires is to be continuous metal conduit from the main switch-board in the basement to the cabinets containing the tablet boards on the different floors and thence to metal boxes located at the outlets shown on the plans.

11. Sizes of conduit tubing. Conduits of sufficient size are to be used to permit of the wires being withdrawn and reinserted at any time without damage either to the wires or the conduits.

12. Installation of conduits. Conduits must be continuous from outlet to outlet, and from outlet to tablet or junction box. All conduits shall be set under the floor concrete of the story above or upon inside surfaces of walls receiving furring or within partitions, chases and other places where they will be concealed. No horizontal or cross runs in partitions will be allowed.

13. Fishing conduits. The entire conduit system must be installed before any conductors are drawn in, and carefully inspected to guard against obstructions and omission, after which the wires shall be drawn. Any tube showing indications of moisture on the fish wires, cord or drawn conductor must have the conductor withdrawn and must then be swabbed out until dry. Powdered soapstone shall be blown into the conduit or applied to the wires to facilitate the drawing of the latter wherever necessary.

14. Preliminary work. The Contractor has the privilege of installing short pieces of conduit for side lights before the concrete is poured, and such risers and other main conduits as cannot so well be installed afterwards.

15. Supports and fastenings. The tubes must be properly secured in position throughout their run by approved fastenings of special design to secure neatness in arrangement. Where the proper support and fastenings cannot be otherwise obtained the Contractor must provide and set suitable wooden supports to which the conduits must be secured which must be approved by the Architect. The use of wire nails or staples for fastenings is prohibited. Conduits are also to be anchored and braced in such a manner as to prevent displacement when the

wires are inserted. Approved galvanized iron clips are to be used whenever special ones are not required by the Architect.

16. Pull boxes. Suitable pull boxes are to be installed for convenience in withdrawing and redrawing the wires at any time.

17. Support of pipe. Wherever tubing is laid on gas or other piping, a blocking or support shall be put under the piping over which it passes, to remove the strain of supporting the tubing.

OUTLETS

Note. Lighting fixtures and installing the same and electric bulbs are not included. Wires for telephone circuits or the labor for drawing these circuits are not included; but the Contractor shall draw a $\frac{3}{8}$ inch rope through all such conduits to insure that they are free from obstructions, and shall leave in all these conduits a heavy fish cord.

18. Outlets. All fixture outlets shall be left complete with properly aligned fixture studs ready to receive the fixtures.

19. Location of outlets. The approximate location of all outlets is shown on the plans, but the specific position of the outlets in the rooms shall be obtained from the Architect.

20. Designation on plans. The following symbols on the plans have been used:

For ceiling outlets, a ring enclosing a numeral.

For wall outlets, a ring attached to the wall and containing a numeral. The numeral indicates the size of the tungsten lamp to be used at the outlet, thus:

- 1— 25 watt lamp
- 2— 40 watt lamp
- 3— 60 watt lamp
- 4—100 watt lamp or its equivalent
- 6—150 watt lamp or its equivalent
- 8—200 watt lamp or its equivalent
- 10—250 watt lamp or its equivalent

S2—double pole switch.

S3—three way switch.

A rectangle enclosing a numeral indicates a tableboard. The numeral indicates the number of branch switches (not branch circuits) that are to be provided.

V—attached to the wall indicates a telephone outlet.

21. **Fastening at fixture outlets.** Each fixture outlet is to be provided with the Bossert Standard square outlet and switch box and fixture stem No. 81A or their equivalent. Outlet switch boxes are to be properly secured in position and ends of conduit are to be clamped on boxes by steel lock nuts and approved bushings. Unused holes in boxes are to be left sealed and when installed each box is to be tight.

22. **Setting of outlet boxes.** Outlet boxes are to be installed in all outside outlets indicated on plans. They must be set as directed by the Architect and be carefully held in position by approved fastenings.

23. **Joints.** The ends of all tubes are to be well reamed and are to be provided with long taper threads so that the ends may be brought up in the same manner as for water pipes and made water tight. All joints in floor boxes and other boxes likely to be subject to moisture are to be water tight.

24. **Debris and damages.** The Contractor shall at his expense remove all debris resulting from the performance of the work and repair under the supervision of the Architect any damage done to the building etc. in the best manner possible.

25. **Cutting and restoration of walls, etc.** Necessary cutting and restoration of walls, etc. is to be performed under the supervision and to the satisfaction of the Architect, and at expense of the wiring contractor. No horizontal channels are allowed, and cutting is to be avoided so far as possible.

26. **Chases.** Necessary chases shall be built in brick work for the reception of the tubes and tablets which are to be located by the Contractor only after consultation with the Architect. Should structural difficulties prevent the execution of the work of cutting chases, setting tablets, etc., at any point indicated on plans, the necessary deviation therefrom as approved by the Architect may be permitted and must be made without cost to the Owner.

27. **Electric Cabinets.** Cabinets for distributing tablets shall consist of iron enclosures similar to the cabinets made by Frank Adams of St. Louis, formed into two compartments, the inner compartment to contain the distributing tablet and the outer compartment the wire runway of ample size completely surrounding the inner compartment and separated therefrom by slate or asbestos composition sheets not less than $1\frac{1}{2}$ " thick. The door of the cabinets shall be of iron. Samples or

detail drawings of the cabinets shall be submitted for approval.

28. **Setting cabinets.** The electric tablets shall be mounted in sheet iron cabinets firmly set and secured in the wall at the points shown on the plans so that the door of the cabinet containing them shall be flush with the finished wall line. Their lower edge must be 5'0" above the finished floor line, but in case this height may be within the height of the top moulding of wainscoting, tablets are to be set wholly within or above the same as shall be directed by the Architect.

ELECTRIC TABLETS

29. **Tablet details.** The following instructions pertain to all main tablets, feeder tablets, and distributing tablets.

Copper. All copper work is to be pure forged or rolled copper, milled where necessary and lacquered. All copper must be proportioned so that the current density shall not exceed 600 amperes per square inch.

Bases. Tablet bases shall be of polished slate.

Lugs. All incoming and outgoing wires are to be soldered into lugs, giving ample contact surface.

Fuses. Incoming and outgoing feeders are not to be fused but provision is to be made for enclosed plug fuses in each wire of all outgoing branch lines. All two wire branch circuits shall be provided with fuses in both wires.

The Contractor shall provide a duplicate set of fuses for all circuits.

30. **Switchboard.** The Contractor shall provide one paneled slate switchboard to be located in the basement as shown on the plans. This panel shall contain one 150 ampere 250 volt triple pole main switch with 100 ampere knife blade enclosed fuses.

All switches and fuses to be rear connected. The neutral wire is to be provided with fuse contacts, but heavy copper jumpers are to be substituted for the fuses, in the neutral wire. The Contractor is to provide two complete sets of fuse. All switches are to be provided with plates indicating the circuits they control.

31. **Distributing tablets.** At the points shown on the plans on each floor there shall be located the cabinets containing the distributing tablets having the number of branch circuit switches indicated on the drawings. Note that the drawings call for

more switches than at present required; this to provide for future additions to the building.

Each distributing tablet shall contain three bus-bars fed by a three wire feeder. From these three wire bus-bars, the two wire 110 volt distributing or branch circuits shall be taken off through double pole switches and enclosed fuses. The number of branch circuits which are to be provided for at each tablet is indicated on the plans. The branch circuits are to be divided between the two sides of the three wire circuits so as equally to divide the load between the two sides.

32. Marking circuits. Each outgoing circuit from the tablet boards is to be designated by the number of the room or the location of the outlet fed by the circuit. This designation is to be clearly marked on the tablet between the switch blades or the fuses. The Contractor shall submit for approval samples of tablet fixtures and finish.

33. Grounding neutral wire. The Contractor shall ground the neutral wire to the water system at the part where the water pipe system enters the building. The ground wire is to consist of a No. 4 B & S rubber covered copper tapped on to the neutral on the transformer side of the main cutout and carried to the water system in conduit.

34. Conductors. Double braided rubber covered conductors shall be used throughout except that for feeder cables either rubber covered cable or General Electric varnished cambric covered cables may be used. All rubber covered conductors shall be of the following makes or their equivalents: Grimshaw, white core; Okonite, General Electric white core. All wires larger than No. 8 B & S shall be stranded.

35. Feeder circuit conductors. There shall be one lighting feeder circuit extending from the feeder switch on the switch board in the basement to the tablet board on the fourth floor and passing through the tablet on the intervening floors. This feeder is to consist of three No. 00 B & S conductors.

36. Branch circuit conductors. The branch circuit conductors must be of such a size that the drop from the tablet board to the farthest lamp on the circuit with all lamps on the branch circuit turned on, shall not exceed 1.5 volts. No wire smaller than No. 12 B & S gauge shall be used.

37. Drawing conductors. The Contractor will not be allowed to place any wires in conduits or tubes buried in cement.

lime plaster or concrete until the lime, etc., shall have become thoroughly set and dry and the tubes free from moisture. No claims that low insulation, as shown by subsequent test, is due to moisture in the tubes, will be entertained. Moist conduit must be swabbed out before drawing wires as previously described. Conductors shall be drawn throughout this system in such manner as not to injure the insulation. No joints will be allowed on either feeders or branch circuits except at outlets. All connections to tablet boards are to be made by soldering wires into lugs.

38. Ordinary switches. All switches not specified as knife switches or canopy switches shall be Hart, C. S. or Perkins flush double pole, push button switches. They shall be set in approved boxes. The switch plates shall conform with the hardware on the building. Switch outlets are shown on plans, but should any room be overlooked the switch shall be installed as necessary.

39. Location and style of switches. All stair corridor lights are to be controlled by switches placed respectively on the floor above and below every landing. The switches on any floor for controlling these lights shall be in gang plates. All other lights shall be controlled by switches on the respective floors located near the doors.

40. Switches in stacks. Lights in the book stacks are to be controlled by 3 way switches, one on each end of each alternate stack (see typical plan on 3rd floor). Such switches shall be placed on the iron work of the stacks, as directed by the Architect. Other lights in the stack rooms shall be controlled by switches at the head of the stairs on each story and mezzanine story at points adjacent to the elevator. The three light circuit at the east end of each floor and mezzanine floor shall be controlled by four way switches at the head and foot of each flight of stairs.

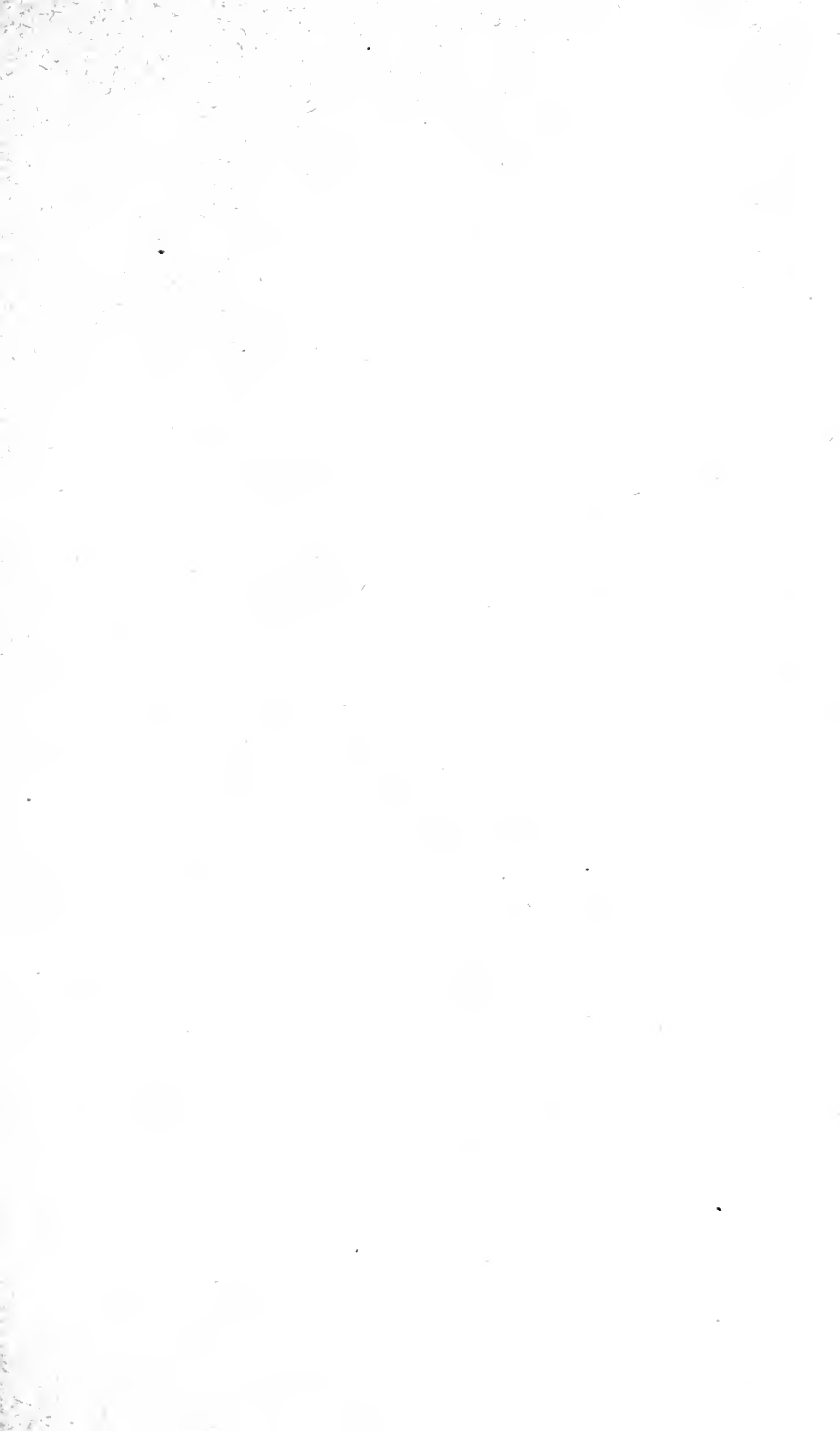
Desk lights at the ends of book stacks do not require switches and must be independent of circuits controlled by switch.

41. Arrangement of outlets. All light outlets are upon the ceiling, except for desk lights at the ends of the book stacks which will be side outlets extended on the metal work of the stacks. The entire number is set down upon the plans.

42. Telephone conduit details. The Contractor is to set up near the main switchboard a 16 pair telephone cable metal ter-

terminal box and is to run from this box 1½ inch conduit. These conduits are to extend from the basement to the fourth floor and at each floor are to pass through a pull box located in the baseboard. From each pull box one or more ½" conduits are to tap off and terminate in suitable boxes located in the baseboards at the telephone outlets shown on that floor. The telephone company will furnish the cable terminal box from which the conduit is to start in the basement. The Contractor is to draw no wire in this conduit.

Finally. This contract contemplates and comprises a perfect and complete job of electric conduit and wiring work and anything necessary to that result is hereby included the same as if particularly mentioned, described and detailed upon the plans and details. When completed the Contractor shall remove all debris, tools, machines and apparatus of every sort belonging to this work, leaving the premises free from anything of the kind.



EXCHANGE
OCT 2 1913

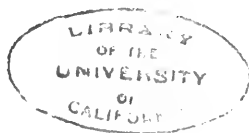
Wisconsin.

(Oct 2)

Madison

SPECIFICATIONS for Material, Construction, and Installation of Cases, etc.,
for the Northwest Wing of the State
Historical Library at Madison, Wisconsin

By Edward Tough, Deputy Architect



MADISON
Wisconsin Historical Society
1913

SPECIFICATIONS for Material, Construction, and Installation of Cases, etc.,
for the Northwest Wing of the State
Historical Library at Madison, Wisconsin

By Edward Tough, Deputy Architect

MADISON
Wisconsin Historical Society
1913

Specifications

for Material, Construction, and Installation of Cases, etc., for the Northwest Wing of the State Historical Library Building at Madison, Wisconsin. Prepared by Edward Tough, Deputy Architect.

‡Authorized by Chap. 574, Laws of Wisconsin, 1911; amended by Chap. 13, Laws of 1913.]

General Conditions

I. **Bids.** Sealed proposals will be received for the material, construction, and installation of cases, etc., for the said Northwest Wing, up to 12 o'clock noon, Wednesday, September 10, 1913.

II. **Form of bids.** Bids must be on the printed forms furnished by the Secretary of the Special Building Committee of the State Historical Society of Wisconsin, and in conformity with the directions found therein. All bids must be sealed and addressed to the Secretary of the said Committee, accompanied by a certified check to the amount of two per cent of the bid, drawn to the order of the said Secretary, which the bidder must agree to forfeit if he fails to enter into contract for the work bid upon within five days after written notice of acceptance of his bid. The checks of all bidders will be returned as soon as the contracts are let, except that the check of the successful bidder will be returned upon approval of the contract by the Governor of Wisconsin.

III. **Bond.** The Contractor must furnish a good and sufficient surety company bond to the amount of twenty-five per cent of the contract amount, the same to be in form satisfactory to the Governor of Wisconsin and to the Special Building

Committee of the State Historical Society. This bond is to be conditioned upon the faithful performance of the contract and the payment of all claims for labor performed or materials furnished in and about the completion of the contract, in accordance with Chapter 292, Laws of Wisconsin, 1899.

IV. Deposit for plans. Contractors taking plans and specifications from the office of the Secretary or of the Architect will be required to deposit as surety for their return at a set date, ten dollars (\$10). In event of the Contractor not returning the plans or specifications on the day set for such return, the Secretary will deduct the sum of two dollars (\$2) from the deposit for each and every day the plans and specifications are so withheld.

All plans and specifications must be returned to the Secretary of the Committee before certified checks will be returned to bidders.

V. Damage and injuries. The Contractor will be held responsible for all damages to persons or property occurring in any manner by reason of his prosecution of the work, and the State Historical Society of Wisconsin is empowered to withhold all moneys due or to become due to the Contractor and to proceed at law against the Contractor and his sureties on his bond, to fully protect itself against any claim or claims whatsoever arising from such causes as above stated.

VI. The owner. The work is being performed for the State Historical Society of Wisconsin, a corporate body under the Laws of Wisconsin, and acting as Trustee of the State. For convenience, said Society is in the specifications spoken of as the Owner. The office of the Owner is Room 208, State Historical Library Building, at Madison, Wisconsin.

VII. Office of the drawings. The drawings, details, and such writings, interlineations, and figures as may be made upon them are to be considered a part of and as illustrating the specifications. All work or material shown on the plans and omitted from the specifications, or vice versa, shall be done under the contract price, the same as if shown or mentioned in both.

Before laying out the said work, the Contractor shall check the drawings and specifications, and measure at the building the various locations of the several cases, etc., to assure himself that said articles of furniture will fit said locations accurately; and he shall report to the Architect any discrepancies discov-

ered. Any unforeseen difficulties or discrepancies arising during the progress of the work must be promptly reported to the Architect, and his approval of any necessary changes obtained before the work on them proceeds.

VIII. Duties of contractor. The Contractor will be held strictly to execute such work and to use such materials as hereinafter described. He will further be held to submit as to character of the materials used and the work done, to the judgment of the Architect, and to secure from him all necessary certificates regarding payments on the contract; also written orders for all additions or deductions which may result from changes of design or plans.

IX. Foreman. The Contractor must have some competent person on the work to receive instructions and see when each particular part of the work is required. Sub-contractors will not be recognized.

X. Work and materials. Upon being directed to do so by the Architect, the Contractor is bound in all cases to remove improper work or materials and to do so within forty-eight hours after receiving written notice from the Architect; but if the Contractor, after having been directed as above to remove the same, shall refuse or neglect to do so, he shall not only suffer a deduction from the contract price of the difference in value of proper or improper work and materials, but shall also be liable for all damages of whatever nature or kind that may result from such causes.

The above provisions so apply in the same way to all materials or work used, made or fixed without the knowledge of the Architect and not approved by him. The Owner, under the advice of the Architect, shall be at liberty, if in his judgment the case requires it, to replace the same and make good every part at the cost and charge of the Contractor.

XI. Testing. All materials brought upon the job will be subject to sampling, inspection, analysis, and testing at any time and all times by the Architect, and the Contractor must not use any materials, tests of which are being made, until the approval of the Architect is obtained. Any material condemned by the Architect must at once be removed from the premises.

XII. Damages and delays. This contract is to be completed, and must be finished throughout, as hereinafter de-

scribed, within six (6) months after the execution of this contract. Any delay in the entire completion of the work contracted for shall make the Contractor liable to the Owner in the sum of one hundred dollars (\$100.00) per day as liquidated damages for each and every day of such delay of completion after the end of said six months.

Bidders are advised that these damages are not fixed as a penalty, but are so fixed because the contract must be completed by the time set or such injury will be caused to the Owner as will doubtless exceed the sum named.

XIII. Beginning work. While the time of completion is specified to be six months after execution of contract, no delay in beginning construction shall be made by the Contractor. The work shall be begun within thirty days after said execution, and construction shall go on rapidly and continuously to completion.

XIV. Delay of the work. In case of delay by the Contractor in providing and delivering the requisite materials, or on account of a deficiency of workmen, or for his misconduct, inattention, or inability, the Owner shall be at liberty (after the Architect has given or left for the Contractor with his foreman or clerk, two days' notice in writing) to provide at the expense of the Contractor all such materials, and employ such number of workmen at such wages as the Architect shall think proper, and the cost and charges incurred shall be retained out of the contract amount and paid by a reservation from the estimates from time to time, or amounts thereof which may be due or recoverable as liquidated damages.

XV. Contractor's responsibilities. It is to be understood by the Contractor that the work is entirely at his risk until the same is accepted, and he will be held liable for its safety to the amount of money paid him by the Owner on account of same, the risk of fire excepted, as provided in the contract.

XVI. Changes in work. The Owner reserves the right, by conferring with the Architect, to alter or modify the plans and these specifications in any particular, and the Architect shall be at liberty to make any deviation in the construction, detail, or execution without in either case invalidating or rendering void the contract. And in case any such alteration shall increase or diminish the cost of doing the work, the amount to be allowed to the Contractor or Owner shall be such

as may be equitable and just, as provided in Article XII of the contract.

XVII. Extra work. Should any extra work be required or changes in the plans be made whereby the cost may be increased or diminished, all such changes must be determined and agreed upon before the change is made, and the amount, whether increase or diminish in cost, must be endorsed upon the back of the contract.

XVIII. Superintendence. The Owner will designate the person who shall be Superintendent therefor. The duties of such Superintendent shall be faithfully to enforce the conditions of the contract and to furnish all information that may be required properly to illustrate the designs given; also to make estimates for the Contractor of the amount due him on the contract, in no case estimating any material or labor which is objectionable or has not been placed in the building; and when the work is completed, to issue a final certificate to the Contractor, which certificate, if unconditional, shall be an acceptance of the work.

All of the work shall be subject to inspection at any time both at the factory and the building, and its acceptance shall depend on the result of the final inspection.

XIX. Delivery. This Contractor must place in position at the building all furniture made by him. Each piece must fit its place exactly, and be fitted to existing work in a perfect manner.

XX. Marking. Each article of furniture is to be marked in plain letters and figures, with the number of the same, the Contractor's name and the year of manufacture. These figures and letters must be not less than 1½ inch high, stamped or sunk in the wood. This must be done at points accessible, but at the same time obscure when the article is in use.

All tables, desks, and such other portable articles as may be designated by the Building Committee shall be marked by type or stencil plate in letters not less than one inch in height, at some accessible point (obscure, however, when the article is in use), with the words: WISCONSIN HISTORICAL SOCIETY—STATE PROPERTY. 1913.

XXI. Completion and acceptance. All the specifications, designs, plans, details, elevations, and sections of each and every kind that the Contractor may have received, must be

preserved and returned to the Architect before the final certificate is given; and the Owner must be notified by the Contractor that he is ready to have a settlement, so that if the Owner, or parties in interest, have any bills to file in, they can do so before the Superintendent makes his final certificate or adjustment between the parties.

The Architect's opinion, certificates, report, and decision on all matters concerning this contract, shall be binding and conclusive, except as arbitration is provided for in the contract.

XXII. Interpretation of drawings. Should the Contractor or his representative obtain any explanation or interpretation from any of the employes in the Architect's office, or from any of the employes of the Owner, which does not strictly conform to the plans, drawings, and these specifications, either for guiding in estimating or for furnishing materials and executing the work after the contract is closed, such interpretation will be of no avail with the Architect, no matter how definitely the explanation may have been given, unless the Architect's written order is given for the same. It is intended that the plans, drawings, and these specifications shall be the guide in executing the work and settling the contract, except as modified by such written orders as may be given and agreed upon between the Owner, the Architect, and the Contractor.

XXIII. Substitution of materials. Wherever in the plans and specifications a specific manufacture is indicated, it is to be understood that an article of equally good material and manufacture, if in advance approved in writing by the Architect, may be substituted; said approval to be filed with the contract in the office of the Owner.

XXIV. Samples. The Contractor shall, in advance of allowing any of them to enter into the work, submit to the Architect samples of the various kinds of materials, appliances, hardware, mouldings, and carvings proposed to be used.

Several samples of each kind of wood (4x8 inches in size, and 1 1/4 inch thick), stained and finished as directed, must be made for the information of the Architect, in order that he may determine therefrom the exact finish desired.

XXV. Co-operation with others. The Contractor is to co-operate with other contractors on the work, so that as a whole the job shall be a complete and finished one of its kind; and

he shall carry on and arrange his work in such a manner that none of the co-operating contractors shall be unnecessarily hindered or delayed in the progress of the work; and when the Contractor has finished his work he shall remove from the premises all tools, machinery, debris, etc., and (so far as he is concerned) leave the building or work and adjacent premises free and clear from all obstructions and hindrances.

All rubbish must be regularly removed and not allowed to accumulate on the premises.

XXVI. Payments. The Owner agrees to pay to the Contractor the amount stated in the contract, by installments, to the extent of eighty-five (85) per cent. of the value of the work actually executed and installed, upon certificates from the Architect. If demanded, the Contractor shall supply to the Architect an itemized list of unit prices, as an aid to the Architect in preparing estimates for payment on account. The balance, or fifteen (15) per cent., is to be paid within thirty days after the completion and acceptance of the work covered by the contract.

Any payment made on work during its progress, on account of the contract or for extra work, shall in no case be construed as an acceptance of the work executed; but the Contractor shall be held liable to all the conditions of the contract until the work is completed and accepted.

XXVII. Guarantee. The Contractor shall give a written guarantee that he will at any time within three years from the date of the final certificate, at the request of the Superintendent of the State Historical Society of Wisconsin, and without any additional compensation whatsoever, make any repairs to his work, provided that such repairs are necessitated by any defect or default in workmanship or material in the execution of this contract.

The Contractor must give also a written guarantee to protect and save harmless the State Historical Society of Wisconsin from loss or damage by suit, or otherwise, from any and all infringements of patents for materials or devices used in the construction of any and all work called for in these specifications, and to assume all liability for royalties.

XXVIII. Extract from the Laws of the State of Wisconsin,
1911:

No. 39, A., Section 1729m. 1. No laborer, workman or mechanic in the employ of the contractor, subcontractor, agent or other person, doing or contracting to do all or a part of the work contemplated by the contract, shall be permitted to work more than eight hours in any one calendar day, except in cases of extraordinary emergencies.

2. The phrase "extraordinary emergencies" as used in this section, shall mean and include such as grow out of the necessity of protecting property or human life when endangered from fire, flood or storm.

3. This section shall apply only to such work as is actually performed on the premises on which such buildings or works are being erected, constructed, remodeled or repaired.

Section 1729n. 1. Any contractor, subcontractor, corporation, copartnership, firm or person, or any agent thereof, who violates any of the provisions of this act, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine not exceeding two hundred dollars, or by imprisonment for not more than six months, or by both fine and imprisonment.

3. Any contractor, subcontractor, corporation, copartnership, firm or person, or any agent thereof, who after executing a contract under the provisions of this act shall allow or permit any laborer, workman or mechanic in his, its or their employ or in the employment of any contractor, subcontractor, agent or other person under his, its or their control or direction, to work more than eight hours in any one calendar day, except in cases of extraordinary emergencies, shall be deemed to have violated the provisions of this act and shall be subject to the punishment herein provided for.

4. Whenever it shall be ascertained that any laborer, workman, mechanic or other person worked more than eight hours in any calendar day in violation of subsections 1 and 2 of section 1729m, the proof of such fact shall be prima facie proof that such laborer, workman, mechanic or other person was so required or permitted to work.

Section 2. This act shall take effect and be in force from and after its passage and publication.

XXIX. The Owner reserves the right to accept or reject any and all proposals.

Specifications for General Furniture

1. **Extent of work.** The work to be done under these specifications consists of furnishing all the materials and doing all the work required to construct and set in place in the Northwest Wing of the State Historical Library at Madison, Wisconsin, the various pieces of furniture shown on sheets Nos. I to XI inclusive, and of the numbers enumerated in the following schedule:

Schedule of Furniture and Fittings

Room.	Quantity.	Wood.	Approximate dimensions (Length)	Notes.	For drawings, see sheets No.
102 Mez.	1	White oak....	7 f. 3 in.	Map case with long drawers....	X.
102 Mez.	1	White oak....	7 f. 3 in.	Map case....	X.
102 Mez.	1	White oak....	5 f. 6 in.	Illustrated material case....	X.
107	1	White oak....	14 f. 6 in.	Single faced catalogue case....	X.
107 A...	2	Pine.....	32 f. 6 in.	Single faced book cases....	X.
107 A...	1	Pine.....	28 f. 0 in.	Double faced book cases....	X.
118	1	White oak....	26 f. 6 in.	Book case with internal angle....	XI.
120	1	White oak....	16 f. 9 in.	Book case with external angle....	XI.
120	1	White oak....	15 f. 0 in.	Book case....	XI.
122	1	White oak....	6 f. 0 in.	Book case with internal angle....	XI.
131	1	Pine.....	6 f. 0 in.	Book case with doors....	X.
131	1	Pine.....	21 f. 6 in.	Book case....	X.
131	1	Pine.....	6 f. 0 in.	Book case....	X.
212 M...	1	White oak....	20 f. 6 in.	Single faced catalogue case with internal angle....	IX.
212 M...	1	White oak....	11 f. 0 in.	Double faced catalogue case....	IX.
212 M...	1	White oak....	12 f. 0 in.	Double faced catalogue case....	IX.
212 M...	1	White oak....	12 f. 0 in.	Double faced book case....	IX.
212 M...	1	White oak....	6 f. 0 in.	Single faced book case....	IX.
212 M...	1	White oak....	6 f. 6 in.	Table....	IX.
220	1	White oak....	10 f. 0 in.	Case with desk....	VIII.
220	1	White oak....	4 f. 6 in.	Case with sliding doors....	IX.
230	1	White oak....	13 f. 9 in.	Case with desk and closets....	XI.
230	1	White oak....	7 f. 0 in.	Case with desk and shelves on back....	IX.
*230	4	White oak....	2 f. 9 in.	Double faced book case....	IX.
216	1	Mahogany....	13 f. 6 in.	Double faced catalogue case....	VIII.
216	2	Mahogany....	9 f. 0 in.	Tables....	VIII.
*216	4	Mahogany....	3 f. 8 in.	Tables....	VIII.
*216	3	Mahogany....	6 f. 0 in.	Tables....	VIII.
227	2	Mahogany....	5 f. 4 in.	Book cases....	VIII.
227	1	Mahogany....	5 f. 10 in.	Book cases....	VIII.
227	1	Mahogany....	5 f. 3 in.	Book cases....	VIII.
227	1	Mahogany....	4 f. 10 in.	Book cases....	VIII.
312	2	Mahogany....	8 f. 0 in.	Case with shelf drawers....	XI.
313	1	White oak....	19 f. 0 in.	Wall book case....	XI.
319	1	White oak....	4 f. 0 in.	Wall book case....	XI.
324	1	White oak....	9 f. 0 in.	Wall book case....	XI.
324	1	White oak....	10 f. 6 in.	Wall book case....	XI.
324	1	White oak....	5 f. 9 in.	Wall book case....	XI.
325	1	White oak....	19 f. 0 in.	Wall book case....	XI.
400	1	Birch....	51 f. 6 in.	Wall book case....	I, II, III.
400	3	Birch....	9 f. 0 in.	Double faced cases....	I, II, III.
*400	4	Birch....	5 f. 11 in.	Double faced cases....	I, II, III.
*400	1	Birch....	10 f. 0 in.	Wall case....	I, IV, V.
400	1	Birch....	9 f. 6 in.	Wall case....	I, IV, V.
400	1	Birch....	5 f. 6 in.	Wall case....	I, IV, V.
*400	1	Birch....	7 f. 0 in.	Table case....	I, V, VI.
401	1	Birch....	8 f. 0 in.	Wall case....	I, IV, V.
401	3	Birch....	7 f. 0 in.	Table cases....	I, V, VI.
401	1	Birch....	6 f. 0 in.	Boat case....	I, VII.
403	2	Birch....	10 f. 0 in.	Wall case....	I, IV, V.
403	2	Birch....	8 f. 6 in.	Wall case....	I, IV, V.
403	1	Birch....	5 f. 0 in.	Skeleton case....	I, V, VI.
405	6	Birch....	7 f. 0 in.	Table cases....	I, V, VI.
405	1	Birch....	3 f. 0 in.	Model case....	I, V, VI.
405	1	Birch....	3 f. 7 in.	Model case....	I, V, VI.
407	2	Birch....	10 f. 0 in.	Wall cases....	I, IV, V.
407	2	Birch....	7 f. 0 in.	Table cases....	I, V, VI.
408	2	Birch....	10 f. 0 in.	Wall cases....	I, IV, V.
416	1	Birch....	9 f. 0 in.	Wall case....	I, IV, V.
417	7	Birch....	7 f. 0 in.	Table cases....	I, V, VI.
417	1	Birch....	7 f. 0 in.	Removable platform....	I, VI.
419	2	Birch....	10 f. 0 in.	Wall cases....	I, IV, V.
419	2	Birch....	7 f. 0 in.	Table cases....	I, V, VI.
420	2	Birch....	10 f. 0 in.	Wall cases....	I, IV, V.
420	3	Birch....	8 f. 0 in.	Wall cases....	I, IV, V.
420	4	Birch....	7 f. 0 in.	Table cases....	I, V, VI.
423	6	Birch....	7 f. 0 in.	Wall cases....	I, IV, V.
423	2	Birch....	5 f. 0 in.	Wall cases....	I, IV, V.
*423	3	Birch....	7 f. 0 in.	Deep table cases....	I, IV, V.
423	2	Birch....	2 f. 0 in.	Tables....	I, V.
425	10	Birch....	7 f. 0 in.	Table cases....	I, IV, V.
425	3	Birch....	7 f. 0 in.	Deep table cases....	I, IV, V.
426	1	Birch....	10 f. 0 in.	Wall case....	I, IV, V.
426	1	Birch....	13 f. 0 in.	Wall case....	I, IV, V.
426	2	Birch....	5 f. 11 in.	Double faced cases....	I, II, III.
430	2	Pine.....	6 f. 0 in.	Book cases....	I, VI.

Where an asterisk (*) is used in the above schedule, the Contractor must, before building other cases of this character, deliver complete, as a sample, one case for the Building Committee's approval.

The Contractor will note the specification for wall-case glass, etc. (see sheet no. IV); also the amount of extra glass required for table cases (see sheet no. VI).

2. Plans. The plans accompanying these specifications consist of XI sheets, showing furniture, etc., sections of the same, and scale and full size drawings of details. Attention is called to the explanatory notes on the drawings, which are to be considered as supplementary to these specifications and schedule.

3. Quality and kind of work. The intent of the Building Committee is to have reproduced upon each of the several floors above named, library furniture of a character suited to the purpose of said rooms. It is intended to be similar to the existing furniture in general plan, style, quality, and finish, and with such hardware and mechanical devices as are specified on the plans; where, however, none such are specified, they are to be fitted with mechanical devices and hardware similar to that already installed in said rooms, unless there shall be found upon the market later and more acceptable devices. The Committee will not accept furniture workmanship or devices in the slightest degree inferior to the present installation; and it is to be fully understood that the existing work will be used as a test of the new.

Bidders are expected thoroughly to familiarize themselves with the intent and meaning of these specifications and of the uses to which the proposed furniture is to be put. This will necessitate a careful study, at the building, by an expert designer and joiner, of the furniture already in use in the several rooms, and full consultation relative to the same, with the Building Committee and Architect.

Bidders will note, on the form of bid, the division of the work into three general classes: (1) Museum cases; (2) Catalogue cases; and (3) Book cases. The schedule of furniture and fittings is to be carefully marked by bidder, so that it may be clear to the Committee as to exactly which work his bid covers. Please note that there are also several small pieces of unclassified furniture (such as tables and a movable plat-

form); the bidder for class 3 (book cases) will include these in his bid.

4. **Drawings.** The Contractor is to make full-size detail drawings whenever called upon. These drawings shall be submitted to the Architect for approval, and shall be altered until satisfactory to him.

5. **Materials.**

Lumber

Lumber must be thoroughly seasoned and kiln-dried.

Mahogany shall be hard, heavy, and close-grained. It shall be the best quality of clean Mexican mahogany, selected for fine markings and grain.

White oak shall be of the best quality—clear, quarter-sawed, and carefully selected for the best effects of grain and markings.

Birch shall be first clear, red birch, selected for even color and fine grain.

All doors, exposed ends, etc. (except when otherwise shown) must be of laminated construction, with $\frac{1}{4}$ inch thick veneer for exterior as called for in Schedule, and $\frac{1}{4}$ inch thick whitewood veneer for all inside work. All laminated cases shall be constructed either of chestnut or butternut lumber; and all shall be perfectly straight and well glued. All lumber must be heated to 70 degrees Fahrenheit before any glue is applied. All stiles and rails must be well dowelled and glued, and further strengthened by metal angles thoroughly fastened with screws. All large bottoms are to be panelled with panels not exceeding 8 inches in width and with rails tongued, grooved, and well glued. Such large panelled bottoms are to be covered by black building paper laid loose; on top of this is to be placed a 3-ply wood panel, well bradded down to exclude dust. All cases must be constructed so as virtually to be dust and insect-proof. All doors must be set on pins or hinges as may be shown on plans. Pin doors are to be set with Timmis & Cussold 2-inch pin plate of statuary bronze. Hinged doors are to be hung on statuary bronze ball-tipped butts, all as shown on plans: the same securely fastened with brass screws of statuary bronze. Doors are to be shaped on the inside, to set over metal strips 3 16-inch by $\frac{1}{2}$ -inch, which are to be fastened with screws set on about 4-inch centres.

Metal strips all around the door openings are to be drilled and tapped for bolts which will have three-cornered heads. Where tapped holes occur in metal strips, screws must be not more than $\frac{1}{2}$ -inch away from these in order to make a perfect bearing.

Japanese dust wicking is to run in one continuous cord, and on the surface of the opening against which each door fits; it is to be perfectly glued in place. On the outside of doors where bolts occur, are required countersunk lvs adjustable cup washers of statuary bronze finish. All glass mouldings are to be laid in black paper strips. All glass is to be set with black felt. All cases that are to be furnished with sliding shoes, as shown on plans, must be fitted with metal strip $\frac{1}{4}$ -inch thick by 2 inches wide, in such lengths as may be required; with the lower edges well rounded so as not to mar the floor. These metal shoes are to be made perfectly smooth and be fastened with screws set on about 4-inch centres; screw heads to be countersunk so that they cannot come in contact with the floor. At the bottom edge of rails on movable cases, the Contractor will fit a metal L-iron to support the base; this metal to run around the entire base of these cases. All centre divisions shown as adjustable, must be made in sections about 3 feet 6 inches or 4 feet wide, loose dowel, with small push-bolts of approved design, at top and bottom. All centre divisions and backs must be constructed 5-ply, the inside case panelled of butternut or chestnut. All interior wood exposed to view must be of whitewood.

Hardware

All hardware to be as specified on the plans, and to match the other hardware of the rooms. Where a special finish is called for, the same must be approved by the Architect. No backs of locks must be exposed inside of cases. The metal strips for door openings are to be of wrought iron, smooth finish. The machine bolts are to be of steel, with three-cornered heads, statuary bronze finish, where seen. One dozen steel keys to operate these bolts are to be furnished by the Contractor. The keys will be finished in the same style as the bolts.

Marble Base

The marble used must be of the best quality and to match the marble of the cases already in the building. Drill holes for screws and countersunk Ives adjustable cup washers shall be about 18 inches between centres. All exposed ends, fronts, and top edges are to be polished—the upper outer corner to be slightly rounded. The marble base is to be fastened with round-head screws of finish to be determined by the Architect.

Glass

All glass is to be the best American polished plate, of uniform thickness—except as shown in doors and sides of table cases in which it is to be $\frac{1}{2}$ -inch in thickness. All glass is to be set with paper and felt; the latter to be delivered to the Museum rooms for poisoning, in order to be made insect proof, and then to be taken therefrom by this Contractor. No glass showing air bubbles, scratches, or any other defects will be accepted.

Paint

Varnish must be either Pratt & Lambert's No. 38 Preservative, or Murphy's Interior Transparent Wood Finish.

Filler must be Wheeler's paste filler.

Shellac shall be of the best quality white shellac, dissolved in pure grain alcohol.

All japan is to be of the best quality obtainable.

Stains and tinting pigments must be of the best quality obtainable. The black shading color shall be XXX drop black.

All paints shall be prepared with pure white lead and boiled linseed oil.

6. Workmanship.

Kind of Wood

The kind of wood to be used on the outside of the various pieces of furniture is indicated in the schedule. The front edges of partitions, division pieces, and shelves are to be faced with the same wood, not less than $\frac{1}{2}$ -inch thick. Drawer fronts and edges of shelves covered by doors, must

also be of the same wood. Backs, partitions, and shelves in mahogany cases shall be of birch. Backs, partitions, and shelves in white oak cases shall be of red oak. Drawer sides and backs are to be of cherry; guide rails and strips are to be of birch or red oak. Bottoms of drawers are to be of compo-board. Splines, dowels, and extension-slides of drawers shall be of maple. Heavy framing shall be of pine. All other parts not here enumerated shall be of whitewood. The tops of all cases where shown on plans are to be of the same wood as the sides.

Finish

All surfaces shall be planed perfectly straight and smooth; finished surfaces must in addition be sand-papered by hand, if necessary to insure a surface perfectly smooth and free from scratches. The filler must be rubbed down smooth.

Each coat of finish applied after the filler, except the last, shall be sand-papered smooth. The last coat shall be rubbed down with pumice stone and oil, to a dull gloss.

The color of all finish shall be determined by the Architect.

Stain may be applied before or with the filler, depending on the best results, as determined by the Architect. The tops of all cases (except Museum wall cases) must unless otherwise specified, be painted two coats.

Museum cases, also all other furniture on the 4th floor (excepting in Room 430), shall have an ebony finish and a dead black finish on the inside—excepting Museum wall cases, which shall be finished on the inside as hereafter to be specified. For the finish on the outside of all this furniture, the first and second coats shall be paint, the third japan, the fourth and fifth varnish. For the finish on the inside of these cases, the first and second coats shall be paint, the third and fourth shall be japan; add black pigment to both the paint and the japan. The insides of Museum wall cases are to have for their first coat, pure Red Seal white lead, a little boiled linseed oil, and japan thinned with turpentine. When dry, sandpaper and follow with two coats mixed thus: pure Red Seal white lead, boiled oil and japan added; raw sienna ground in oil, light chrome yellow mixed in oil, a little lamp black in oil, and yellow ochre dry—all to be reduced with pure turpentine. The last two coats are to be stippled. Strain all paint before using.

The inside of drawer in the skeleton case is to be given a dead black finish. The outside of all other pieces, including the inside of doors, edges of division pieces, and faces of drawers and backs of doors, shall be finished with one coat of filler, one coat of shellac, and three coats of varnish. The shellac coat is to be omitted on table and desk tops.

The inside of all cases, except Museum wall cases, including both sides of shelves, shall be finished with one coat of filler and two coats of varnish. The tops of all cases where shown, and where they have to match present cases, are to be finished same as the sides.

It is understood that the cases when finished must match in every way the present cases in the various rooms where they are to be located.

Carving

Carving is to match the carving on the cases already in the building.

Coping and Blocking

All pieces of furniture standing against walls must be coped with the wainscoting and base; the backs must be detailed as shown on sheet V of plans. Set blocks into door and window casings.

General

Framing, joints, mouldings, panels, slides, doors, etc., must be detailed and constructed to match in every way the cases at present in the building. The mahogany table tops are to be made up of as few pieces as possible. They are to be solid, not less than $1\frac{1}{8}$ inches thick, made of strips not over 6 inches wide. Table tops are to be secured in place with wood blocks or slotted steel plates.

Shelves

The regular thickness for shelves in book cases is to be 7 8 inch. Unless otherwise specified, all shelves must be adjustable and moulded on front wherever required.

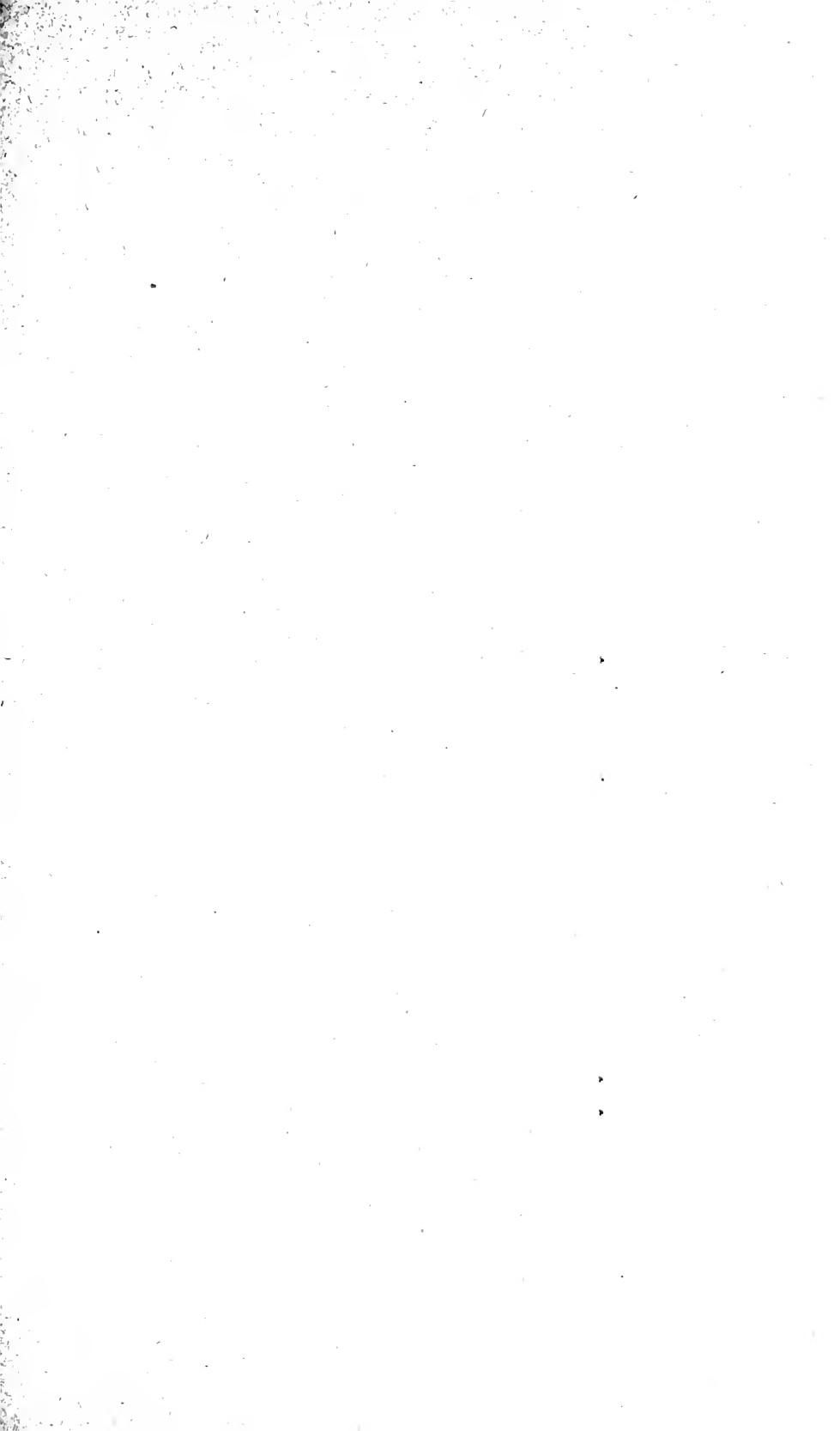
Extension of Ventilating Pipes

This work will be done by others; but the present Contractor must render the necessary assistance and enclose their sides with wood.

The asbestos paper covered with galvanized iron, on cases in room 237, is in the present contract.

7. Installing. All fixtures are to be installed in their respective locations in the building in the best workmanlike manner, without bumps, scratches, or breaks of any kind in wood, marble, glass, etc. Each case is to be left in a perfect condition. All crating, lumber, broken glass, or other waste material is to be removed from the building, and the rooms wherein the installation takes place left broom clean. All walls, floors, interior trim, paint, or other property of the building that is damaged in any way by this Contractor must be repaired by him, or at his expense, and restored to perfect condition.

8. Bid to include priced schedule. This Contractor must furnish with his bid a detailed priced schedule of all the various pieces of furniture, etc., to be furnished by him; and it is hereby fully understood and agreed that the Owner may add to or deduct therefrom such pieces as he may wish, at the prices quoted in the schedule.



Wisconsin (State) Historical Soc.

**SPECIFICATIONS for Metal Book
Stacks, Mezzanine Floors, Iron Stairs,
etc., for the Northwest Wing of the
State Historical Library at Madison,
Wisconsin**

By Edward Tough, Deputy Architect

MADISON

Wisconsin Historical Society

1913

1. The first part of the paper is devoted to a general discussion of the problem of the existence of solutions of the system of equations (1) for arbitrary values of the parameters α and β . It is shown that the system has solutions for all values of the parameters α and β if the function $f(x)$ is continuous and has a bounded derivative.

2. The second part of the paper is devoted to a detailed study of the properties of the solutions of the system of equations (1) for arbitrary values of the parameters α and β .

Specifications

for Metal Book Stacks, Mezzanine Floor, Iron Stairs, etc.,
for the Northwest Wing of the State Historical Library
Building at Madison, Wisconsin. Prepared by Edward
Tough, Deputy Architect.

[Authorized by Chap. 574, Laws of Wisconsin, 1911.]

General Conditions

I. **Bids.** Sealed proposals will be received for the construction and installation of metal book stacks, mezzanine floors, iron stairs, etc., for the said Northwest Wing, up to 12 o'clock noon, Thursday, February 27, 1913.

II. **Form of bids.** Bids must be on the printed forms furnished by the Secretary of the Special Building Committee of the State Historical Society of Wisconsin, and in conformity with the directions found therein. All bids must be sealed and addressed to the Secretary of the said Committee, accompanied by a certified check to the amount of two per cent of the bid, drawn to the order of the said Secretary, which the bidder must agree to forfeit if he fails to enter into contract for the work bid upon within five days after written notice of acceptance of his bid. The checks of all bidders will be returned as soon as the contracts are let, except that the check of the successful bidder will be returned upon approval of the contract by the Governor of Wisconsin.

III. **Bond.** The Contractor must furnish a good and sufficient surety company bond to the amount of twenty-five per cent of the contract amount, the same to be in form satisfactory to the Governor of Wisconsin and to the Special Building Committee of the State Historical Society. This bond is to be condi-

tioned upon the faithful performance of the contract and the payment of all claims for labor performed or materials furnished in and about the completion of the contract, in accordance with Chapter 292, Laws of Wisconsin, 1899.

IV. Deposit for plans. Contractors taking plans and specifications from the office of the Secretary or of the Architect will be required to deposit as surety for their return at a set date, ten dollars (\$10). In event of the Contractor not returning the plans or specifications on the day set for such return, the Secretary will deduct the sum of two dollars (\$2) from the deposit for each and every day the plans and specifications are so withheld.

All plans and specifications must be returned to the Secretary of the Committee before certified checks will be returned to bidders.

V. Damage and injuries. The Contractor will be held responsible for all damages to persons or property occurring in any manner by reason of his prosecution of the work, and the State Historical Society of Wisconsin is empowered to withhold all moneys due or to become due to the Contractor and to proceed at law against the Contractor and his sureties on his bond, to fully protect itself against any claim or claims whatsoever arising from such causes as above stated.

VI. The owner. The work is being performed for the State Historical Society of Wisconsin, a corporate body under the Laws of Wisconsin, and acting as Trustee of the State. For convenience, said Society is in the specifications spoken of as the Owner.

VII. Office of the drawings. The drawings, details, and such writings, interlineations, and figures as may be made upon them are to be considered a part of and as illustrating the specifications. All work or material shown on the plans and omitted from the specifications, or vice versa, shall be done under the contract price, the same as if shown or mentioned in both.

The Contractor shall check the drawings and specifications before laying out the said building or work, and report to the Architect any discrepancies discovered. Any unforeseen difficulties or discrepancies arising during the progress of the work must be promptly reported to the Architect, and his approval of any necessary changes obtained before the work on them proceeds.

VIII. Duties of contractor. The Contractor will be held strictly to execute such work and to use such materials as hereinafter described. He will further be held to submit as to character of the materials used and the work done, to the judgment of the Architect, and to secure from him all necessary certificates regarding payments on the contract; also written orders for all additions or deductions which may result from changes of design or plans.

IX. Foreman. The Contractor must have some competent person on the work to receive instructions and see when each particular part of the work is required. Sub-contractors will not be recognized.

X. Work and materials. Upon being directed to do so by the Architect, the Contractor is bound in all cases to remove improper work or materials and to do so within forty-eight hours after receiving written notice from the Architect; but if the Contractor, after having been directed as above to remove the same, shall refuse or neglect to do so, he shall not only suffer a deduction from the contract price of the difference in value of proper or improper work and materials, but shall also be liable for all damages of whatever nature or kind that may result from such causes.

The above provisions so apply in the same way to all materials or work used, made or fixed without the knowledge of the Architect and not approved by him. The Owner, under the advice of the Architect, shall be at liberty, if in his judgment the case requires it, to replace the same and make good every part at the cost and charge of the Contractor.

XI. Testing. All materials brought upon the job will be subject to sampling, inspection, analysis, and testing at any time and all times by the Architect, and the Contractor must not use any materials, tests of which are being made, until the approval of the Architect is obtained. Any material condemned by the Architect must at once be removed from the premises.

XII. Damages and delays. This contract is to be completed, and must be finished throughout, as hereinafter described, within six (6) months after the execution of this contract. Any delay in the entire completion of the work contracted for shall make the Contractor liable to the Owner in the sum of one hundred dollars (\$100.00) per day as liquidated damages for each and

every day of such delay of completion after the end of said six months.

Bidders are advised that these damages are not fixed as a mere penalty, but are so fixed because the contract must be completed by the time set or such injury will be caused to the Owner as will doubtless exceed the sum named.

XIII. Beginning work. While the time of completion is specified to be six months after execution of contract, no delay in beginning construction shall be made by the Contractor. The work shall be begun within thirty days after said execution, and construction shall go on rapidly and continuously to completion.

XIV. Delay of the work. In case of delay by the Contractor in providing and delivering the requisite materials, or in advancement of the building or work, or on account of a deficiency of workmen, or for his misconduct, inattention, or inability, the Owner shall be at liberty (after the Architect has given or left for the Contractor with his foreman or clerk, two days' notice in writing) to provide at the expense of the Contractor all such materials, and employ such number of workmen at such wages as the Architect shall think proper, and the cost and charges incurred shall be retained out of the contract amount and paid by a reservation from the estimates from time to time, or amounts thereof which may be due or recoverable as liquidated damages.

XV. Contractor's responsibilities. It is to be understood by the Contractor that the building or work is entirely at his risk until the same is accepted, and he will be held liable for its safety to the amount of money paid him by the Owner on account of same, risk of fire excepted, as provided in the contract.

XVI. Changes in work. The Owner reserves the right, by conferring with the Architect, to alter or modify the plans and these specifications in any particular, and the Architect shall be at liberty to make any deviation in the construction, detail, or execution without in either case invalidating or rendering void the contract. And in case any such alteration shall increase or diminish the cost of doing the work, the amount to be allowed to the Contractor or Owner shall be such as may be equitable and just, as provided in Article XII of the contract.

XVII. Extra work. Should any extra work be required or changes in the plans be made whereby the cost may be increased or diminished, all such changes must be determined and agreed

upon before the change is made, and the amount, whether increase or diminish in cost, must be endorsed upon the back of the contract.

XVIII. Superintendence. The Owner will designate the person who shall be Superintendent therefor. The duties of such Superintendent shall be faithfully to enforce all the conditions of the contract and to furnish all necessary drawings and information that are required properly to illustrate the designs given; also to make estimates for the Contractor of the amount due him on the contract, in no case estimating any material or labor which is objectionable or has not become a permanent part of the work, and when the building is completed, to issue a final certificate to the Contractor, which certificate, if unconditional, shall be an acceptance of the work.

It is not incumbent upon the Superintendent to notify the Contractor to attend to and have in readiness his own work and the requisite materials at such time as the progress of the building or work may require them.

If the Contractor does not attend to this part of his work and have his own portion of the labor and materials in readiness as they may be wanted to incorporate into the building, he will be held accountable for all delays and damages in consequence of any such neglect to all and any persons whatsoever damaged by his neglect, and the Superintendent is empowered to withhold such sums from the contract price as may meet the cost of such damages.

XIX. Completion and acceptance. All the specifications, designs, plans, details, elevations, and sections of each and every kind that the Contractor may have received, must be preserved and returned to the Architect before the final certificate is given; and the Owner must be notified by the Contractor that he is ready to have a settlement, so that if the Owner, or parties in interest, have any bills to file in, they can do so before the Superintendent makes his final certificate or adjustment between the parties.

The Architect's opinion, certificates, report, and decision on all matters concerning this contract, shall be binding and conclusive, except as arbitration is provided for in the contract.

XX. Interpretation of drawings. Should the Contractor or his representative obtain any explanation or interpretation from any of the employees in the Architect's office, or from any of the

employees of the Owner, which does not strictly conform to the plans, drawings, and these specifications, either for guiding in estimating or for furnishing materials and executing the work after the contract is closed, such interpretation will be of no avail with the Architect, no matter how definitely the explanation may have been given, unless the Architect's written order is given for the same. It is intended that the plans, drawings, and these specifications shall be the guide in executing the work and settling the contract, except as modified by such written orders as may be given and agreed upon between the Owner, the Architect, and the Contractor.

XXI. Co-operation with others. Each contractor is to co-operate with other contractors on the building or work, so that as a whole the job shall be a complete and finished one of its kind; and he shall carry on and arrange his work in such a manner that none of the co-operating contractors shall be unnecessarily hindered or delayed in the progress of the work; and when this Contractor has finished his work he shall remove from the premises all tools, machinery, debris, etc., and (so far as he is concerned) leave the building or work and adjacent premises free and clear from all obstructions and hindrances.

All rubbish must be regularly removed and not allowed to accumulate on the premises.

XXII. Payments. The Owner agrees to pay to the Contractor the amount stated in the contract, by installments, to the extent of eighty-five (85) per cent. of the value of the work actually executed and erected, upon certificates from the Architect. If demanded, the Contractor shall supply to the Architect an itemized list of unit prices, as an aid to the Architect in preparing estimates for payment on account. The balance, or fifteen (15) per cent., is to be paid within thirty days after the completion and acceptance of the work covered by the contract.

Any payment made on work during its progress, on account of the contract or for extra work, shall in no case be construed as an acceptance of the work executed, but the Contractor shall be held liable to all the conditions of the contract until the work is completed and accepted.

XXIII. Guarantee. The Contractor shall give a written guarantee that he will at any time within three years from the date of the final certificate, at the request of the Superintendent of the State Historical Society of Wisconsin, and without any

additional compensation whatsoever, make any repairs to his work, provided that such repairs are necessitated by any defect or default in workmanship, or material in the execution of this contract.

The Contractor must give also a written guarantee to protect and save harmless the State Historical Society of Wisconsin from loss or damage by suit, or otherwise, from any and all infringements of patents for materials or devices used in the construction of any and all work called for in these specifications, and to assume all liability for royalties.

XXIV. Extract from the Laws of the State of Wisconsin, 1911:

No. 39, A., Section 1729m. 1. No laborer, workman or mechanic in the employ of the contractor, subcontractor, agent or other person, doing or contracting to do all or a part of the work contemplated by the contract, shall be permitted to work more than eight hours in any one calendar day, except in cases of extraordinary emergencies.

2. The phrase "extraordinary emergencies" as used in this section, shall mean and include such as grow out of the necessity of protecting property or human life when endangered from fire, flood or storm.

3. This section shall apply only to such work as is actually performed on the premises on which such buildings or works are being erected, constructed, remodeled or repaired.

Section 1729n. 1. Any contractor, subcontractor, corporation, copartnership, firm or person, or any agent thereof, who violates any of the provisions of this act, shall be deemed guilty of a misdemeanor and upon conviction thereof shall be punished by a fine not exceeding two hundred dollars, or by imprisonment for not more than six months, or by both fine and imprisonment.

3. Any contractor, subcontractor, corporation, copartnership, firm or person, or any agent thereof, who after executing a contract under the provisions of this act shall allow or permit any laborer, workman or mechanic in his, its or their employ or in the employment of any contractor, subcontractor, agent or other person under his, its or their control or direction, to work more than eight hours in any one calendar day, except in cases of extraordinary emergencies, shall be deemed to have violated the provisions of this act and shall be subject to the punishment herein provided for.

4. Whenever it shall be ascertained that any laborer, workman, mechanic or other person worked more than eight hours in any calendar day in violation of subsections 1 and 2 of section 1729m, the proof of such fact shall be prima facie proof that such laborer, workman, mechanic or other person was so required or permitted to work.

Section 2. This act shall take effect and be in force from and after its passage and publication.

XXV. The Owner reserves the right to accept or reject any and all proposals.

Specifications for Metal Book Stacks, Mezzanine Floors, Stairs, etc.

1. **Extent of work.** The work to be done under these specifications consists in furnishing the materials and doing all the work required to build completely the metal book stacks, with their floors, railings, and stairs with their landings and inclosures, etc., as shown by these specifications and accompanying plans.

The heating and ventilating system, the elevator and elevator inclosure, and the electric conduiting and wiring are not included in the present contract. Proper provision is to be made for these items, however, as hereinafter specified.

2. **Plans.** The plans accompanying these specifications consist of four sheets, showing position of the book stacks, etc., section of the same, and scale drawings of details. Attention is called to the explanatory notes on the drawings, which are to be considered as supplementary to these specifications.

3. **Drawings, etc.** The bidder shall submit with his bid, detailed specifications and drawings, giving complete descriptions, dimensions, and illustrations of the designs submitted by him, kind and quality of materials, methods of construction and finish, and all other information required to give a clear understanding of the entire work in its various parts.

The Contractor is to make full-size detail drawings showing the nature and finish of all work; these, and the original drawings submitted with bid, shall be submitted to the Architect for approval, and shall be altered until satisfactory to him.

4. **Samples.** Each bidder must submit with his bid, samples as follows: A full-size section of the book stack proposed to be used. This sample must illustrate fully the design of stack and its finish, and the special features of construction. This section must be placed where directed, in the State Historical Library Building, at Madison, Wis., so that it may be examined by the Building Committee at the opening of the proposals. The sample of stack should be accompanied by samples of stack label holder, shelf label holder, and book support. Such samples and

the detailed drawings and specifications referred to in the preceding section shall be understood as forming an integral part of the contract.

5. Book Stacks. Three floors of book stacks, each of two tiers with a mezzanine floor, will be required as shown by the plans. Upright shelf supports to be designed of ample strength to carry all books superimposed, including weight of mezzanine floors, books, and live loads, with a proper factor of safety. Stack uprights to be spaced so as to form sections about 3 feet in length, except where conditions necessitate shorter sections as shown on plans. Each face of each and every section must, in addition to the fixed floor shelf, have six adjustable and interchangeable shelves of sheet metal, except that on stack I there shall be seven such shelves. The base of stacks shall be plain and not more than four inches in height. The bottom shelf, of full depth of stack, shall be raised slightly above the base and be attached securely thereto so as to form a dust stop. Stacks standing against walls must be fitted neatly and closely to the latter; where wood bases are in place, they must be removed, and the plastering extended to floor, perfectly smooth. Furnish for all floors a solid 1/16" thick plate for top of all stacks, said plate so designed that it will engage book supports for top shelf on its under side. All six floors of stack to have a plain narrow metal cornice, as shown on plans. Ends of all stacks to be plain without panels or mouldings, but with rounded corners. All metal work to be of best material and workmanship to be first-class in every respect.

6. Mezzanine floors. The framing of the mezzanine floors will consist of steel members, designed to support marble, glass, or slate slabs, and to carry a live load of 70 lbs. per square foot of aisle surface, plus the actual dead loads, with a factor of safety of four. This framing is to be carried directly on the stack uprights and the walls, and be well anchored to same. Furnish curb angles parallel to the faces of stacks, also around all walls and well holes, and in all window recesses, to carry the marble, glass, or slate flooring; edges are to stand not less than 1/2" above top of finished flooring. Furnish all intermediate floor framing to properly support marble, glass, or slate floors. Framing to be placed in proper relations to jointing of marble, glass or slate. All fitting of floor framing is to be neatly done, the ends of connection angles being rounded off. All

rivets and bolts to have round heads and all nuts to be hexagonal.

7. **Stairs.** Furnish stairs extending from basement to sixth floor (stack L), having iron stringers, risers, treads, and newels of simple design, and balustrade with $1\frac{1}{2}$ " square bars about 3" centers with $1\frac{1}{2}$ " channel top and bottom and white oak hand rail and plain cast iron posts, all securely framed together. Similar rail and balustrade required at all openings and landings. Stair also to have oak handrail on wall side securely fixed to wall with brackets. Treads shall be solid, with rubber covering and mason nosing, and risers shall be solid without perforation. All landings to match treads of stair. Iron of railing to be buffed smooth before painting.

8. **Wall cases.** On opposite side of elevator from stairway on each floor, also in stack I and catalogue and work rooms, there will be wall cases with sliding doors and adjustable shelves. These cases to vary in height and depth as shown on plans. In cases which run to ceiling, there will be eight rows of adjustable shelves, with one row of bottom fixed shelves. Cases which run in height to underside of transoms shall have six adjustable shelves with one row of bottom fixed shelves. Sliding doors to be reinforced with $\frac{3}{4}$ " Ls on rear and equipped with Contractor's latest movable adjustment. Wide shelving to be properly reinforced and equipped with Contractor's simplest method of handling same.

9. **Shelves at ends of stacks.** At ends of forty-four shortened stacks, as shown on plans, there will be forty-four small shelves or tables, supported by plain metal brackets. These shelves will be made of steel, with flanges on the four sides, and covered with composition top. Exposed edges of shelves to be finished with a neat 1" bronze binding strip, same fastened to underside of flanges by means of concealed screws. The small book shelf above the reading shelf is to be fastened to and finished like the upright stack ends; in the center of said upper shelf a hole is to be drilled for electric conduit.

10. **Stack label holders.** Ends of all stacks and wall cases are to be fitted with cast bronze label holders. Cards are to be inserted from top of label holders and to show an exposed surface of about $4\frac{1}{2}$ "x7". Double or single stack label holders to be supplied as required.

11. **Shelf label holders.** Each alternate shelf is to be fitted with a suitable shelf label holder, to be easily attached or removed without the use of screws. This should be designed so that the card label is inserted from the end, rather than from the top.

12. **Book supports.** Each alternate shelf is to be supplied with a suitable book support which will engage in the end flanges of the shelf above.

13. **Railings at windows.** Furnish and set two 1½" iron pipes for guards at each window on mezzanine stack floors J and L as indicated. Provide flange connections at ends securely attached to masonry, and finish pipes to match stack ends.

14. **HY-RIB partitions.** Form No. 24 3 rib HY-RIB partitions under stair in basement and under stair on first floor (stack G).

15. **Footings and foundations.** The book stacks will rest upon the finished first, second, and third floors which are already under contract but shall provide such plates, etc., at bottom of stacks as may be necessary to properly distribute the load. Where I beams or channels, etc., rest on walls, Contractor must cut holes in walls, paint beam rests and beams, erect and build around same, and leave all complete. Do all patching of plaster and leave walls in perfect condition.

16. **Heating and ventilating system.** The heating and ventilating system is not in the present contract. Through wall cases next to elevator and wall stack in work room, connect galvanized iron pipes to present heat and vent ducts and encase same in steel. Provide openings in said wall cases for the discharge of air from flues.

17. **Electric lighting.** Proper provision in stack construction is to be made for the installation of a system of electric conduiting, wiring, and lighting of the stacks. The said conduiting and wiring is not included in the present contract, but the drawings submitted by the bidder must indicate satisfactory method of installing said work.

18. **Cutting of work in place.** No cutting is to be done in any work in place in the building, except such as may be ordered by the Architect in writing, or executed under the personal direction of the Architect or his authorized representative. The several contractors are each to do all reasonable cut-

ting and repairing of their own work for the accommodation of material to be installed under their contracts, such work being done in a manner which will permit the work of other contractors to be properly joined thereto.

19. **Finish.** The stacks, cases, and all structural work exposed to view will be finished in general in the same manner as the stacks now in building. The sheet metal work to be japanned. All parts of sheet steel to be cleaned and buffed smooth, and to have two dippings of best japan baked on, with best rubbed finish throughout. The structural parts supporting floors to be painted two coats and be finished with one coat enamel. No stripping required. After the japanned work is erected, it is to be retouched with air drying enamel where rubbed or scraped off, and be refinished and rubbed. Any marred spots on painted parts to be repaired. The finish of the different parts of the metal work is to be of the colors directed by the Owner and the Architect.

20. **Alternative bids.** Alternative bids for the three mezzanine floors are requested as follows:

A. Floors of $1\frac{1}{4}$ " white marble slabs, laid in Portland cement, sand-rubbed on both sides.

B. Floors of $\frac{3}{4}$ " rough plate glass slabs, laid carefully in cement putty, with smooth sides up so as to obtain straight even joints.

C. Floors of $1\frac{1}{4}$ " slate slabs, laid carefully. Both sides of slate to be sand-rubbed. Underside to be painted as directed to match metal work and then finished with enamel to a high gloss finish.

In addition to movable shelving heretofore specified, an additional bid is desired to cover additional cost of one extra shelf for two floors, that is, so that floors G and K will each be equipped throughout with seven movable shelves instead of six.

Gaylamount
Pamphlet
Binder
Gaylord Bros., Inc.
Stockton, Calif.
T. M. Reg. U. S. Pat. Off.

MS 8113

THE UNIVERSITY OF CALIFORNIA LIBRARY

